

'It's Important to Know In Time'

Member Associated Business Papers, Inc.; Audit Bureau of Circulations.

The Newspaper of the Industry

Inside Dope

By George F. Taubeneck

More Farm Labor on the Way Where "Inside Dope" Comes From
FDR Presents Look 'Em Over
Furlough Tales
Magnetic North Pole
Sailors Back, Too
Few Casualties
Shipping Surplus
The Stronger Sex
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Price Levels

More Farm Labor On the Way

It begins to look less and less as if you'll have to worry about a food shortage. After the bad start, crops are turning out unexpectedly well. Meat will soon be rolling to market, as mentioned here previously. Victory Gardens are exceeding expectations.

Farmers are getting their machinery—almost anything they want, even copper wire.

Biggest news in this connection, however, is the "inside dope" that within a comparatively short time more than 100,000 Axis prisoners are expected to be available for farm labor duties. More than 65,000 are here already. This number will at least be doubled soon.

These will include those taken in Tunisia, some of those taken in Sicily, and later those who may wish to come over from other Italian territories. The Italians make good farmers. They always have had a "green thumb." They love the work. They are tractable, easy to manage, grateful for the opportunity to come to America and its high living standards.

Watch for news of this shortly. It will make all the difference in the world in the farm labor picture. It is hoped that many thousands will be on the job for the harvests.

Where "Inside Dope" Comes From

Some of our new subscribers have been asking us where "Inside Dope" comes from, particularly those paragraphs having to do with predictions and prophecies, the inner workings of government, and progress of the war.

"How do you get that way?" they want to know. "How come a technical publication presumes to talk about global strategy and political machinations? Who the hell do you think you are, anyway?"

Older subscribers will recall that for many years the editor has been a member of the executive committee of the National Conference of Business Paper Editors, and that this committee meets regularly and frequently with government leaders, from President Roosevelt and General Marshall on down.

In such conferences we represent the paid-circulation segment of the more responsible business press, so there's no trouble gaining an audience. These are "off-the-record" interviews, in which we are given "background and foreground" material to use without quotation.

Subscribers to the business and technical press are looked upon as unusually high grade citizens, leaders who should know—and can be trusted with—the inside story.

FDR Presents

Evidence of the esteem in which this group is held may be found in the fact that a few weeks ago, when we met with President Roosevelt, he presented an engraved watch to our chairman, Paul Wooton.

You may well ask the question: "Why is everything off the record. Why must you take responsibility for your 'dope' rather than the man who gave it to you?"

(Concluded on Page 5, Column 1)



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HERSHEY ORDER HELP TO SERVICEMEN

Way Opened For More Vegetable Case Production

WASHINGTON, D. C.—Manufacturers of refrigerated vegetable cases may now, upon securing WPB approval of their material and specifications, go ahead with the construction of as many cases as they have material for.

Figures on the need for more of the cases were submitted at a meeting of WPB officials with the Commercial Refrigeration Advisory Committee, together with information that manufacturers have enough material on hand for an estimated 1,000 cases.

As a result of the meeting, manufacturers with these materials may request permission to build from the Refrigeration Section of WPB's General Industrial Equipment Division, submitting with their applications an inventory of the stock on hand. Surpluses of various material thus can be located and redistributed among the manufacturers.

Servel Reveals Plans For Gas Conditioner

EVANSVILLE, Ind.—Plans for a new all-year gas-operated air conditioning unit for residential use and for small commercial establishments, to be made available as soon as the war ends, have been revealed by Louis Ruthenburg, president of Servel, Inc.

Anticipating a tremendous postwar expansion of the market for air conditioning, Servel has developed a new gas-fired unit which combines in one package all the functions of complete air conditioning, including winter heating as well as summer cooling.

Extensive use-tests conducted among 300 field installations during the past several years have proved the practicability of the new unit. These installations have been made and watched by 27 different gas companies.

As in the case with its gas refrigerator, Servel expects that bulk of its air conditioning sales will be made through gas utility companies and cooperating dealers. Although

(Concluded on Page 24, Column 1)

Crosley's Policy on Distribution Stated

CINCINNATI — "Our considered opinion is that independently owned and operated distributorships will deliver a better overall service to the trade and to the consumer . . ."

Such is the announced policy of the Crosley Corp. on the matter of distributors vs. factory branches, as expressed last week by J. H. Rasmussen, commercial manager, in a letter to Crosley distributors and dealers in discussing postwar plans for the distribution of domestic products.

In considering independent distributors vs. factory branch outlets, the company declares that "it has had opportunity to observe both sides of the issue, having operated factory branches in several sections of the country for more than 12 years, and maintaining branches at present in Cincinnati, Chicago, and New York."

(Concluded on Page 4, Column 4)

Bulletin!

3,000 Room Coolers Will Be Released

WASHINGTON, D. C.—Around 3,000 portable air conditioners which have been "frozen" will soon be released to dealers for general and unrestricted sale to civilians, according to sources within the War Production Board.

This decision is said to have been reached last week after an investigation by the Office of Civilian Requirements of the WPB. It is expected that official announcement of the release will be made soon.

'Bucket & Dipper' Water Cooling In Plants Assailed

NEW YORK CITY — Active protest against the forced return to the insanitary "bucket and dipper" method of getting cooled drinking water has been made by manufacturers of mechanically refrigerated drinking water coolers to the WPB. Limitation Order L-38 restricts such coolers to "use abroad ship."

Many industrial plants have gone back to the old insanitary method of using a bucket and tin dipper, throwing the ice in the center of the drinking water, it is stated, and it is pointed out that this is an excellent way of passing disease around to war workers and does not help to reduce absenteeism.

"Drinking water coolers for use in war plants are definitely not a luxury and this holds true no matter whether a water cooler is used in an industrial cafeteria, office, or plant producing civilian necessities," declares Alfred A. Zollo, vice president of the Filtrine Mfg. Co., Brooklyn.

"Water coolers are essential equipment for the safeguarding of the health of employees and the promotion of efficiency. The efficiency of water starved employees falls as the day progresses, and they become less productive."

"Failure to provide essential drinking water equipment, including the means of chilling water to the proper temperature, also results in loss of

(Concluded on Page 4, Column 3)

Telegram to Draft Boards Suggests Deferment Until Oct. 1

WASHINGTON, D. C.—Maj. General Lewis B. Hershey has sent a telegram to all State Selective Service directors calling attention to the critical situation existing in the field of refrigeration service, and recommending that draft boards "give most serious consideration to the deferment or postponement of induction of refrigeration repairmen until Oct. 1, 1943."

Full text of this telegram appears on this page. It will be sent by State Selective Service directors to all local draft boards.

Higham Named V. P. Of Universal Cooler

MARION, Ohio — W. W. Higham has been appointed vice president in charge of engineering of Universal Cooler Corp., it was announced last week by F. S. McNeal, president.

Oldest employee of the company in point of service, "Bill" Higham will direct the company's expanded engineering-research department on present special products for the War Emergency, and also on design and production requirements for postwar.

Pierce & Armstrong Take G-M Posts

DETROIT—Frank R. Pierce has been named head of the Detroit office of the public relations department of General Motors Corp., and W. F. Armstrong has been named special assistant to Albert Bradley, executive vice president of General Motors.

Mr. Pierce had resigned recently as vice president in charge of sales for Nash-Kelvinator Corp., and Mr. Armstrong was also a vice president of Nash-Kelvinator.

Prior to joining Nash-Kelvinator Mr. Pierce had been household sales manager of the Frigidaire division of General Motors Corp. In his new post he will have executive and administrative responsibilities for all Detroit G-M public relations.

Mr. Armstrong had been with Nash-Kelvinator for six years. Previous to that time he had been employed by General Motors Corp. or its subsidiaries since 1912. His last previous employment with the corporation in 1937 was as assistant general manager of Frigidaire.

Text of Memorandum to Draft Boards From State Draft Headquarters Based on Gen. Hershey's Telegram

MEMORANDUM M-634

(re: Telegram from General Hershey)

July 27, 1943

In order to preserve the food and maintain the health of the nation it is most important that all types of refrigeration be maintained on an efficient basis, particularly during the summer months.

There is at present about one-third of the normal supply of qualified repair men available to maintain both industrial and private refrigeration equipment. Because of the extreme shortage of qualified personnel, it is recommended that local board give most serious consideration to the deferment or postponement of induction of refrigeration repairmen until Oct. 1, 1943.

'Written To Be Read on Arrival'

Issued Every Monday at Detroit, Michigan

AUG. 2, 1943

Vol. 39, No. 14, Serial No. 750
Established 1926.

Price Ceiling Set On Used Room Coolers, Small Appliances

WASHINGTON, D. C.—A simplified scale of price ceilings on 15 groups of used durable goods including various electrical appliances and room coolers (under 1 ton) is set up by Maximum Price Regulation No. 429, issued by the Office of Price Administration.

Effective Sept. 1, the ruling will affect certain classifications of used goods (reconditioned, rebuilt, and renovated), but will not cover goods which were sold new, returned to the original seller, and the full purchase price refunded.

Durable goods blanketed by this order include all kinds of stoves, ranges, and space heaters; portable room coolers of under one ton B.T.U. capacity; used houseware items such as clothes wringers, pressure canners, and small electric appliances; and commercial and institutional kitchen equipment such as ranges, broilers, automatic fryers, ovens, steamtables, hot plates, griddles, coffee urns, toasters, dishwashers, glasswashers, mixers, choppers, and canopies.

The regulation specifically excludes such items as used household refrigerators (covered by MPR-139), used vacuum cleaners (MPR-294), and used washing machines (MPR-372).

To figure price ceilings on the (Concluded on Page 4, Column 4)

'French Fries' For Navy With Modern Ranges



Navy cook's schooling includes special instruction of the electric galley equipment found on all the newer vessels. Classes like the above, held at the Edison-Hotpoint plant in Chicago, cover all phases of cooking, baking, broiling, and frying. Here Russ Bloomberg, expert in large-scale cooking operations, explains the technique of "French frying" with the electric fry kettle.

OPA Issues Warning on Used Gas Range Prices

WASHINGTON, D. C.—Warning retailers not to pay excessively high prices for used gas ranges, the Office of Price Administration made clear recently that the ceiling to be placed in effect Aug. 1 controlling the price of new gas ranges under the ration-

ing program, will not be high enough to allow for sales profit if inflationary prices are paid for old models.

If dealers bid up prices on used ranges among themselves in anticipation of getting higher prices from the consumer after rationing starts, they will, OPA says, find themselves caught with stocks of used ranges for which they may have paid more than the ceiling prices authorized.

Surveys By Cleveland Press Reveals Big Lag In Home Repair Work

CLEVELAND — Appliance service calls in the Cleveland area are suffering long delays because of the shortage of repairmen and of the replacement parts they need, a recent public press survey disclosed.

Representatives of appliance service outlets reported minimum delays of two days in answering service calls, and that customers who brought their appliances into the shop could be given no better service because repair parts were not obtainable.

Here is what a few of them had to say:

Refrigeration Maintenance Corp., 1127 Carnegie Ave.: "We're trying to cover our territory with four servicemen; last year we had eight. Milk is delivered only every other day, and food spoils fast. We know that, but we haven't the manpower to work any faster."

Acme Refrigeration Co., 1275 East 105th St.: "We don't try to book any business ahead anymore. People call in every day and say they've had to throw meat away. They're our good customers that we've always serviced. But we don't have the parts for replacements, and we haven't got men to put them in if we could get them."

ABC Washer and Ironer Service, 2738 East 55th St.: "With plenty of women doing their own washing for the first time, many of them overload the machines and the motors break down. It takes us three or four days to get a man out to see them."

Text of Revised WPB Order L-63 Setting Inventory Regulations For Refrigeration and Other Suppliers

Part 1046—Suppliers

(Limitation Order L-63, as Amended July 10, 1943)

§ 1046.1 Suppliers' Inventory Limitation Order L-63—(a) Definitions. (1) "Supplies" means all the supplies listed below:

- (i) Automotive supplies.
- (ii) Aviation supplies.
- (iii) Builders' supplies.
- (iv) Construction supplies.
- (v) Dairy supplies.
- (vi) Electrical supplies.
- (vii) Farm supplies.
- (viii) Foundry supplies.
- (ix) Grain elevator supplies.
- (x) Hardware supplies.
- (xi) Industrial supplies.
- (xii) Plumbing & heating supplies.
- (xiii) Refrigeration supplies.
- (xiv) Restaurant supplies.
- (xv) Textile mill supplies.
- (xvi) Transmission supplies.
- (xvii) Welding & cutting supplies.

even though such items or materials may be "consumers' goods" within the meaning of that term as used in Limitation Order L-219; but supplies shall not be deemed to include any of the items or materials set forth in List A.

(2) "Supplier" means any person (other than a producer) located in the 48 states or the District of Columbia, whose business consists, in whole or in part, of the sale from stock or inventory of supplies. "Supplier" includes wholesalers, distributors, jobbers, dealers, retailers, branch warehouses of producers and other persons performing a similar function.

(3) "Producer" means any person including any branch, division or section of any enterprise, which manufactures, processes, fabricates, assembles or otherwise physically changes any material.

(4) "Sales" means sales from stock, including consigned stocks and excluding direct shipments (i. e., excluding sales made by a supplier of supplies which such supplier has never received delivery of but has ordered from the producer thereof with instructions that they be shipped directly to the supplier's customer).

(5) "Seasonal lines" means any line of supplies in which a minimum of 40% of the supplier's total annual sales are made during a period of 90 days, or less.

(6) "Maximum permissible inventory" means

(i) In the case of a supplier located in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma and Texas, an inventory (owned or consigned to him) of supplies of a total dollar value at cost (by physical or book inventory, at the option of the supplier) equal to the sales of such supplies at net sales figures, shipped from his inventory, during the four preceding calendar months.

(ii) In the case of a supplier located in the District of Columbia or any of the forty-eight states not enumerated in paragraph (a) (6) (i) above, an inventory (owned or consigned to him) of supplies of a total dollar value at cost (by physical or book inventory, at the option of the supplier) equal to sales of such supplies at net sales figures shipped from his inventory during the three preceding calendar months.

(b) Limitation of supplier's inventories. (1) Except as provided in paragraph (b) (3), (4), (5), and (6), no supplier shall accept any delivery of supplies from any person which will effect an increase in the inventories of the supplier above his maximum permissible inventory; and

(2) Except as provided in paragraphs (b) (3), (4), (5), and (6), no person shall make to any supplier any delivery of supplies which such person knows or has reason to believe will effect an increase in such supplier's inventory of supplies above the supplier's maximum permissible inventory.

(3) Any supplier, regardless of where located, shall be permitted to purchase and store an amount of seasonal lines equal to those which he purchased in the peak period of a comparable period of the previous year, but this peak period shall not exceed 120 days.

(4) A supplier may accept delivery of supplies which will increase his stock above the maximum permissible inventory, if such supplier's inventory of supplies is at the time of delivery less than his maximum permissible inventory and the delivery is of the minimum quantity of such supplies that can be commercially procured.

(5) A supplier may accept delivery of specific items of supplies when his stock of all items in the aggregate exceeds, or will by virtue of such acceptance exceed, his maximum permissible inventory, but only to the extent necessary to bring such supplier's inventory of those specific items (owned or consigned to him) up to a total dollar value equal to the sales of such items shipped from such supplier's inventories during the preceding month.

(6) The War Production Board may, from time to time, exempt specified suppliers or classes of suppliers from the provisions of this order, subject to such restrictions as the War Production Board may impose.

(7) The provisions of this order shall not apply to any supplier whose total inventory at cost, including consigned stocks, of all supplies is less than \$35,000.

(c) Provisions of other orders. No provision of this order shall be construed to permit the accumulation of inventories of any item of material in contravention of the provisions of any other applicable order or orders issued by the War Production Board or heretofore issued by the Office of Production Management.

(d) Appeals. Any appeal from the provisions of this order shall be made by filing a letter in triplicate, referring

to the particular provision appealed from and stating fully the grounds of the appeal.

(e) Records and reports. (1) Each supplier (other than those suppliers who are exempt from the provisions of this order pursuant to paragraph (b) (6) or (7) shall, on or before the twentieth day of each month make proper entry of inventory (book or physical at cost), sales of direct shipments, sales from stock, and total sales of each type of supplies as set forth in paragraph (a) (1) of this order, during the previous calendar month on Form WPB-825 (formerly PD-336). This form must be retained for a period of at least two years for inspection by representatives of the War Production Board.

(2) The War Production Board may at any time call for the submission of these reports.

(f) Applicability of priorities regulations. This order and all transactions affected thereby are subject to all applicable provisions of the priorities regulations of the War Production Board, as amended from time to time.

(g) Communications. All communications concerning this order shall be addressed to War Production Board, Wholesale and Retail Trade Division, Industrial and Hardware Supplies Branch, Washington, D. C., Ref.: L-63.

Issued this 10th day of July, 1943.

War Production Board,
By J. Joseph Whelan,
Recording Secretary

List A

Note: Paragraph (9) added July 10, 1943.

The types of material set forth below are not deemed to be supplies within the meaning of paragraph (a) (1). Accordingly, these materials may be excluded from the monthly report required by paragraph (e), and are not subject to the inventory restrictions required by paragraph (b), provided that sales of such materials are not included in computing maximum permissible inventory as defined in paragraph (a) (6).

(1) All General Steel Products listed in Schedule A of General Preference Order M-21-b-1 and all Merchant Trade Products listed in Schedule I of General Preference Order M-21-b-2.

(2) Materials made of aluminum, provided such materials were acquired by the supplier pursuant to allocation or other specific authorization of the War Production Board.

(3) Automotive replacement parts as defined in Limitation Order L-158, and Automotive replacement batteries as defined in Limitation Order L-180.

(4) Functional replacement parts for machinery and equipment; Provided, That in no event shall the supplier accept delivery of any such parts where his inventory thereof is, or will by virtue of such delivery become in excess of six times his sales of such parts during the second preceding calendar month;

(5) Machinery or equipment which is purchased by the supplier at a cost per unit in excess of \$500;

(6) Any material which is subject to rationing by the Office of Price Administration;

(7) The following building materials: Portland and natural cement, lime, gypsum and gypsum products, bituminous roofing materials, concrete pipe, cut stone, sand and gravel, crushed stone, clay products, insulation board, acoustical materials, mineral wool, paving materials, concrete products, glass, lumber, wooden mill work.

(8) Domestic mechanical refrigerators, as defined in Limitation Order L-5-d.

(9) Bare or insulated wire or cable for electrical conduction made from copper or copper base alloy.

Wm. McGrath Joins Carrier Corp. Staff

SYRACUSE, N. Y.—William L. McGrath, formerly associated with Minneapolis-Honeywell Regulator Co., has joined the engineering staff of Carrier Corp., Herbert L. Laube, vice president in charge of engineering, announced recently.

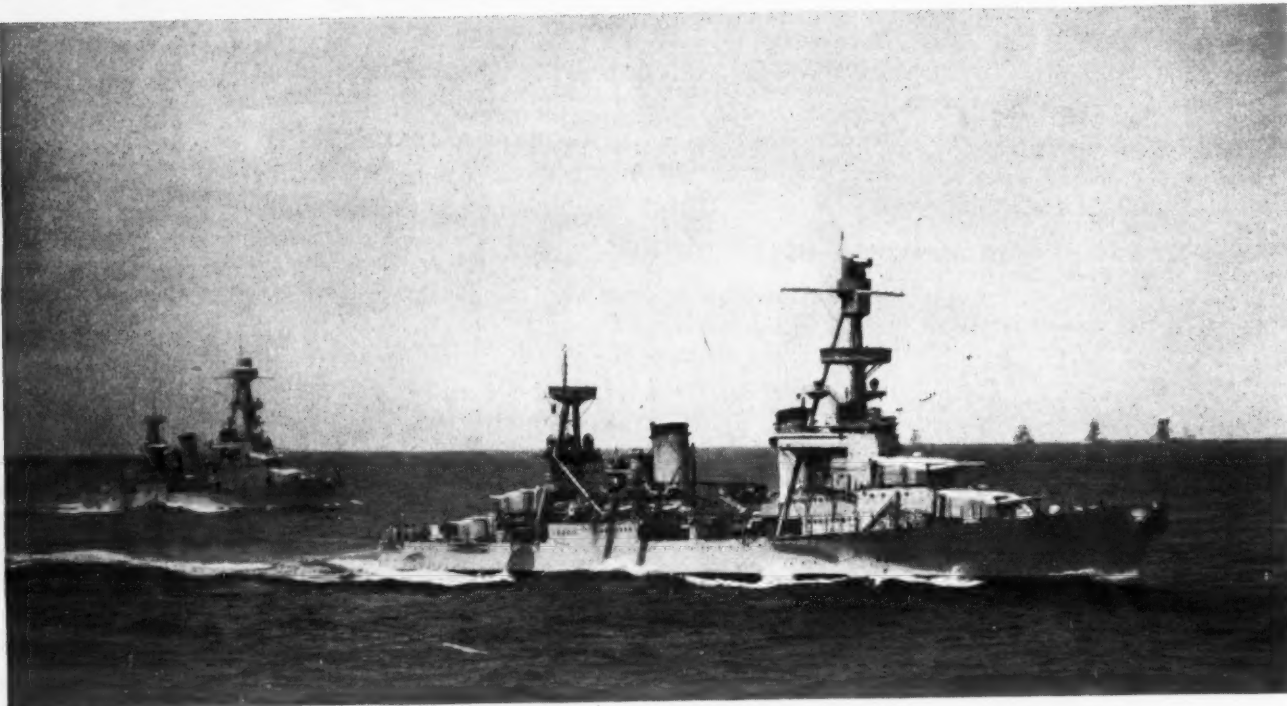
Previous to his connection with Carrier, McGrath was acting supervisor of the air conditioning controls division for Minneapolis-Honeywell in Philadelphia. He had been with the company since his graduation from the University of Minnesota.

McGrath was active in the Philadelphia section of the American Society of Refrigeration Engineers, and holds a number of patents related to the refrigeration industry.

Can't Capitalize CMP-5 Materials

WASHINGTON, D. C.—Products or materials for repairs or replacement may not be obtained under CMP Regulation No. 5 if they are capitalized on the purchaser's books, the War Production Board announced recently, unless such an addition may be included with minor capital. This ruling is contained in Interpretation No. 8 to CMP Regulation No. 5.

It's Time to Tell About Refrigeration's "Hidden Services"



... take FLOATING REFRIGERATION for instance ...

If we could total the "floating Refrigeration" capacity in America's battle fleet, convoy and transport vessels, the figure would stagger the imagination.

Protecting the food and drink of hundreds of thousands of sailors, marines and soldiers on the high seas, or enroute to farflung battle zones is one of the greatest tasks ever accomplished by the Refrigeration Industry. Most of this equipment has been built and installed since Pearl Harbor... Built to new standards of DEPENDABILITY, to operate with a minimum of attention and service under the most trying conditions.

In many of these "Floating Refrigeration" units, as well as on countless thousands of systems at

home, A-P DEPENDABLE Refrigerant Valves are doing their part in assuring typical "service-free" operation in accurate, supersensitive refrigerant control. Meanwhile, as production facilities at A-P are busy turning out essential war equipment, the A-P Research Engineering Division is looking ahead to new achievements in precision control products, helping manufacturers of many types of equipment develop their post-war "dreams"—now.

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY-SECOND STREET
MILWAUKEE 10 WISCONSIN
Export Dept. 100 Varick St., New York City



The Priorities Quiz

(AIR CONDITIONING & REFRIGERATION NEWS, with the aid of a man who is actually engaged in handling much priorities work, will attempt to answer questions from readers about priorities problems. The editors will not guarantee to answer all questions, nor can they guarantee that the answers will be legally perfect, but an effort will be made to provide a guide to correct procedure wherever possible.)

WPB-547 Takes Place Of PD-1X Form

Q. We have heard reports that PD-1X, the Distributor's Priority Application expires at the end of July. Is this a true report?

A. Yes. PD-1X will be superseded by Form WPB-547 which is now available at your local WPB field office. While PD-1X applications will be accepted throughout July, after August 1, distributors' applications for preference ratings must be made on the new WPB-547. The new form calls for a report as to your current sales and an inventory figure for your entire business. Under PD-1X, inventory figures as of December 31, 1941 were the guide.

Now, under the amended form, applicants may choose the inventory figures as of any month in the period between Dec. 31, 1941, and six months prior to the date of the application. The application has been simplified and reduced in size so that it will fit standard typewriters. PD-1X was a great help to distributors. It is expected that WPB-547 will be of even greater assistance for it will be easier to process by the War Production Board permitting prompt service in passing out ratings to distributors by which they may replenish their stocks of equipment.

Facsimile Signatures In CMP Extensions

Q. Is it permissible to use facsimile signatures in extending CMP allotment references?

A. Yes. Priorities Regulation No. 7 as recently amended now provides that facsimile signatures may be used wherever a signature is required on any purchase or delivery orders. Previous to this amendment, facsimile signatures were only approved for endorsements of preference rating extensions. No such signatures may be used for all purposes.

Rules For Purchasing Copper Tubing

Q. Is it still possible for me to buy copper tubing for repair work with a preference rating but without a CMP allotment symbol?

A. Yes, but only until Oct. 1, 1943. CMP Regulation No. 4 which governs the sale of controlled materials (copper, steel, and aluminum) from warehouse stocks has now been amended and provides that such orders as you mention carrying a preference rating of AA-5 or better but without allotment symbol may be filled until Oct. 1, 1943. After that date, only orders with allotment symbols can be filled.

In the period between now and Oct. 1, warehouses are limited in the quantity which may be sold on preference ratings only. That quantity must not exceed 2% of their total deliveries of brass mill products between April 1 and June 30, 1943.

After Oct. 1, 1943, you will need allotment symbols to buy your copper tubing for your repair work. You may obtain such an allotment by filing an application with the War Production Board, Washington, D. C., on Form CMP-4B. Fourth quarter applications are already past due. If you have not already made arrangements for fourth quarter material, therefore, it is advisable to file an application at once.

Form PD-3A Will Remain In Effect

Q. We notice that the Bureau of the Budget Approval on Form PD-3A which we use quite extensively expired on June 30, 1943. Does this mean that PD-3A can no longer be used in making application for items required in direct Army, Navy, and Maritime Commission work?

A. The WPB has recently announced that Form PD-3A will remain in

use even though the indicated expiration date has passed. A new approval from the Bureau of the Budget is on its way.

To What Extent Is 'End Use' Data Useful?

Q. We are still confused about end use. Is it, or is it not important?

A. It is still very important that you pass on to your suppliers all of the end use information that is available to you. While end use as it was known under the "allocation Classification System" is no longer in use, certain commodities are still of so critical a nature and are so scarce that the only means of being sure that the most urgent needs are filled first is by some end use identification.

Stainless steel producers are a good example. Orders for stainless steel will not be accepted by the mills without clear end use identification. To buy plastics, your supplier must send with every order complete end use identification. The same is true of raw material purchases of rubber and numerous other commodities.

In addition, certain of the industry divisions of the War Production Board have already exhausted their supplies of such critical items as brass castings. To secure additional castings to fill your suppliers' applications, they are requesting complete end use identification so that these castings may be taken from the available supplies left for Army, Navy, Maritime Commission or aircraft uses in the same proportion as they will be eventually distributed to those various government branches or agencies.

It is very important, therefore, that you continue to send prime contract numbers, end use code information, or any other data that will help to identify any of your sales as being either Army, Navy, Maritime Commission, aircraft, board of economic warfare, or lend lease requirements. The CMP allotment symbols are helpful in making this identification. It is important, therefore, that whenever these symbols appear on your orders that they be passed along to your suppliers.

WPB Changes Form For Construction Ratings

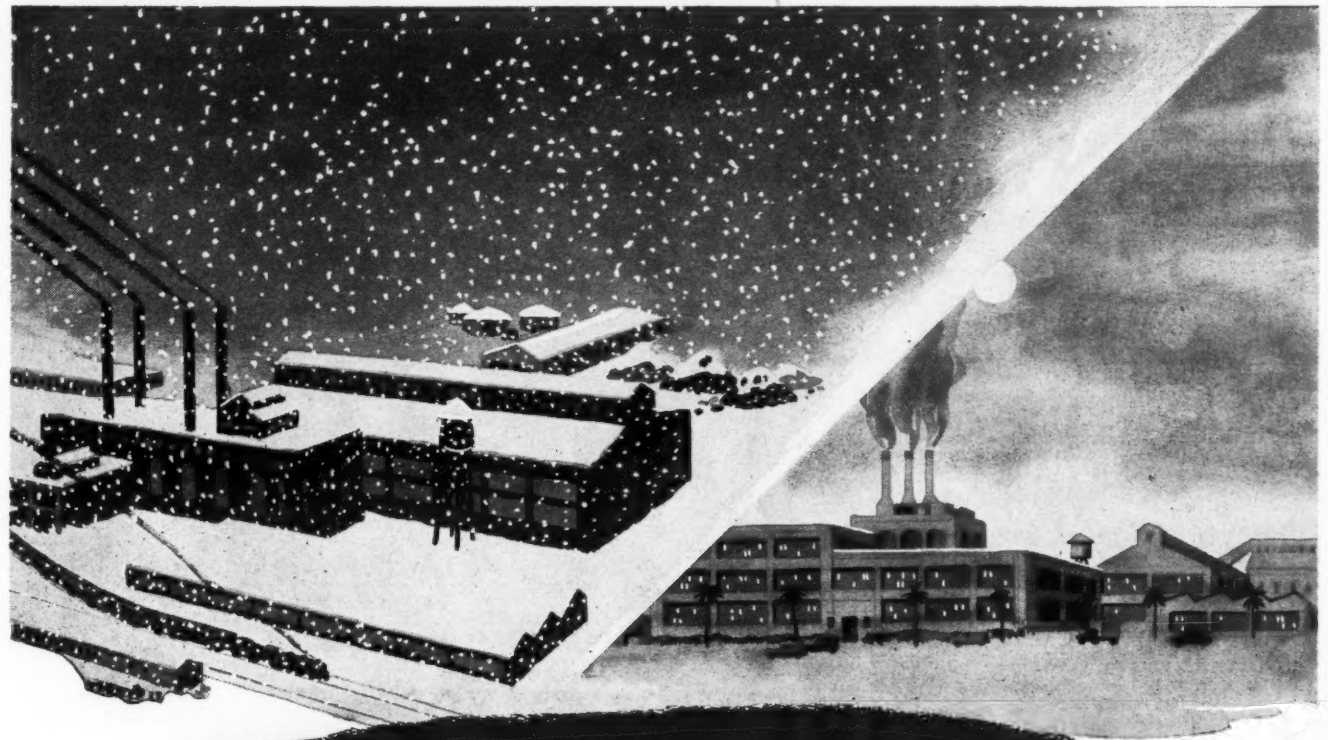
WASHINGTON, D. C.—Form PD-200, the form used to make application for authority to begin construction and for priority assistance, has been replaced by a new form known as WPB-617.

In addition to the functions performed by the old PD-200 forms, the new WPB-617 constitutes an application for allotment of controlled materials. In order to prevent confusion over use of the forms, since all builders were familiar with PD-200, the new form will carry a notation indicating it replaces PD-200.

Beside combining all functions on one form, WPB-617 will have several other advantages over the old form. It will be smaller letter-size—and will fit standard typewriters and files.

Under the Controlled Materials Plan, any person who made application for authority to begin construction and for priority assistance on Form PD-200, and whose application was approved, was required to file additional forms for controlled materials. When WPB-617 comes into use July 1, the filing of these additional forms will no longer be necessary, since controlled materials will be allotted simultaneously with the granting of authority to begin construction. The authorization form will be CMPL-224, which combines the functions of the P-19 series of orders and forms CMP-4C.

The new WPB-617 form may be used prior to July 1, but must be used after that date. It has been distributed to all field offices and is now being issued to builders. Prospective applicants are urged to destroy all copies of PD-200 forms and replenish their stocks with WPB-617.



*When icy blasts grip the North—
the sun still shines in the South*

WITH war production geared to such a tremendous pace, the millions of intricate parts for engines, guns, planes and tanks must be made by many different factories located in every corner of the country. Bearings made in the winter cold of Detroit, or Boston, or Minneapolis, have to fit the delicately balanced crankshaft of an engine that may be made in sunny Mobile, or Dallas, or Los Angeles.

And parts made in Atlanta, or Memphis, or San Diego must fit some other part made in Buffalo, or Syracuse, or Seattle.

From North, South, East and West the endless procession continues, one part fitting with another until the finished implements of war are rolling on their way to the fighting fronts.

Without the help of air conditioning in these factories such accuracy and dovetailing of these far-flung manufacturing facilities would be extremely difficult.

Thus, the refrigeration and air conditioning industry helps in all-out war production by making possible the country-wide fabrication of all these precision parts and contributing in large measure to the vast amounts of material flowing from the Nation's production lines.

Detroit Expansion Valves, Solenoid Valves, and Controls have been the standard of the refrigeration industry for many years. A very broad line is available to take care of any job; large or small.

Use Detroit refrigeration products on your next industrial air conditioning job. Our engineering and research staffs are at your service.



DETROIT LUBRICATOR COMPANY

General Offices: DETROIT 8, MICHIGAN

Division of AMERICAN Radiator and "Standard" Sanitary Corporation

Canadian Representatives—Railway and Engineering Specialties Ltd., Montreal, Toronto, Winnipeg

"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Lubricators

Defer Effective Date On Unit Specifications

WASHINGTON, D. C.—Postponement of the date upon which new specification standards for commercial electric refrigeration condensing units will go into effect was announced last week by the National Bureau of Standards.

Formerly set at May 15, 1943, the effective date of Commercial Standard CS(E)107-43 now is established at six months after the cessation of hostilities, or at such earlier date as may be recommended by the Standing Committee.

Reasons given are the present difficulty of obtaining necessary materials and of making engineering changes in construction and design.

Feininger Named Head Of New G-E Division

SCHENECTADY, N. Y.—E. L. Feininger has been appointed manager of General Electric Co.'s newly created Resin and Insulation Material Division.

Feininger is in charge of the manufacture, engineering, and sales of the products described as insulating varnish, glyptal, varnished cloth, and mica.

C. K. Mead has been appointed sales manager of the new division; C. S. Ferguson, engineer; and H. K. Collins, superintendent, Feininger announces.

More Support Seen For Production Of New Washers

WASHINGTON, D. C.—A possibility that the manufacturer of many items including electric irons and washing machines will be resumed was indicated recently by the Office of Civilian Requirements in statements warning of a "dangerously low point" to be reached by November in the stocks of civilian supplies.

Plans for replenishing reduced stocks are being formulated by OCR at this time for presentation to War Mobilization Director James F. Byrnes. An OCR official has stated that Christmas this year will be a slim one unless steps are taken now for production of sufficient quantities of civilian goods to build up inventories to normal.

Anticipating opposition from military authorities, the OCR intends to take a firm stand on the conviction that civilian needs must be met to maintain morale and efficiency.

"We are asking for more for the last quarter of this year than is now being manufactured," the official said, "and we are particularly asking that personal items—the perplexing, miserable little things that can upset civilians when missing—be manufactured in quantities that will take care of demand."

The idea which the OCR hopes to put over is to get the smaller but necessary things for civilians, and cut down on larger items.

Water Cooler Men Say Plant Drinking Water Is Neglected

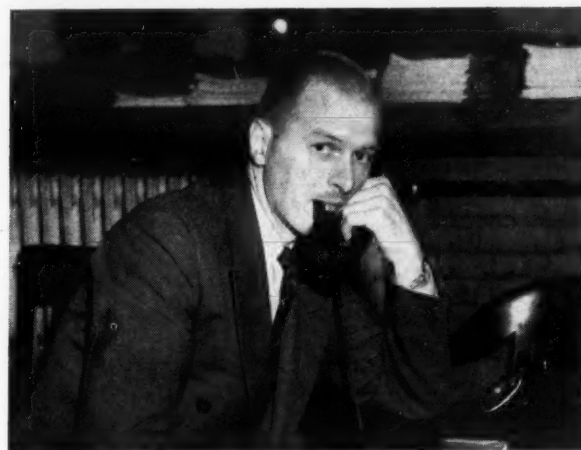
(Concluded from Page 1, Column 3) valuable time. Lacking a supply of cold, palatable water, employees will seek other means of refreshment. This often means protracted absence from the machine.

Mr. Zollo quoted from several letters which have been received during the present hot weather. "This company is making . . . for airplanes and because of the process involved, employees are working in temperatures of from 100 to 120° F. and are forced to go two floors below to get a drink of water which is quite often and results in loss of about 15 minutes per person each time one wants a drink."

In another instance, "We are making water proof containers for packing food and other items for the armed forces. The city water temperatures is 86° and we are experiencing great difficulty in keeping help because of the lack of proper drinking water."

"A recent survey," says Mr. Zollo, "which sought the findings of prominent medical authorities, labor leaders, U. S. Department of Labor and various state labor and health department regulations and recommendations, established that water coolers are essential as 'adequate consumption of drinking water is essential to health and efficiency.'"

Universal Cooler's New Vice President



William Higham, oldest employee of Universal Cooler Corp. in point of service and for many years chief engineer, has been appointed vice president in charge of engineering, and will direct all engineering and research activities.

Formula Is Set Up For Pricing More Used Appliances

(Concluded from Page 1, Column 5) items listed, the regulation instructs as follows:

"Sec. 7. (a). An article is in Class I if:

(1) No part is missing which is necessary to make the article fully useful.

(2) The article is in good working condition, can be used by the consumer for the purpose intended without further repair, and the article is clean and its appearance is good.

"Sec. 7. (b). An article is a Class II article if it is not in Class I.

"Sec. 8. The ceiling price for the used article must be no more than: Class I: $\frac{3}{4}$ (75%) of new. Class II: $\frac{1}{2}$ (33 $\frac{1}{3}$ %) of new.

"No sales, attempts to sell, or offers to sell shall be made at prices higher than the ceiling price. Of course, sales may be made at lower than ceiling prices."

Crosley States Policy On Distributor Vs. Factory Branch Setup

(Concluded from Page 1, Column 2)

Several of the men in Crosley's top staff have had experience with other corporations in both branch and distributor operations, and the company has been studying this phase of its postwar program for more than a year.

It reached the final definite conclusion above for the following stated reasons:

"1. The American system of free enterprise exists today because of the major contributions that small business has made. In our opinion, small business has been, and will continue to be, a powerful force in the shaping of the future of this country.

"2. From a strictly trade standpoint, we believe that distributor management which has money invested in the business will render a better service. It has more at stake. Final authority and final responsibility are within the distributorship, not at some distant headquarters point.

"3. A home-owned independent distributor has a more intimate knowledge of local conditions. A home company will be more aware of and more responsive to the problems of all dealers, both small and large.

"4. Factory branch managers are inclined to 'yes' the factory, and the factory goes stale. An independent distributor is freer to criticize, and is better able to influence factory policies on both merchandising and service. Certainly he knows his dealers' credit needs better than a factory treasurer a thousand miles away.

"5. The independent distributor's employees accept greater responsibility and deliver a better service to dealers because final authority is vested within the local operation.

"6. We believe that with good products and factory programmed merchandising, alert and independent distributors will efficiently and aggressively meet and fulfill their enlarged business responsibilities when civilian production is again allowed."

A postwar program run under these rules, Mr. Rasmussen stated in closing, should deliver better trade to the dealer and to the consumer.

Refrigerators For Resort Use Exempted From Rental Ceilings

WASHINGTON, D. C.—Mechanical refrigerators which are rented to resort users on a seasonal basis today were exempted from the flat-rate provisions for refrigerator rental in cases where the supplier was making such seasonal rentals prior to April 1, 1942, the Office of Price Administration announced recently.

Rates and charges for this type of rental hereafter are to be determined under the method used for seasonal services in Maximum Price Regulation No. 165 (Services), where the dealer placing the refrigerator on rental has customarily rented refrigerators on a seasonal basis prior to April, 1942.

If, however, the dealer did not rent mechanical refrigerators in this manner before that date, the maximum rental rate is to be determined by specific authorization from OPA.

This ruling appears in Amendment No. 1 to Revised Maximum Price Regulation No. 139 (Used Household Mechanical Refrigerators), effective July 20, 1943.

The flat-rate rental provisions of MPR 139 were created to cover rental practices on a year-round basis, which have increased in importance recently due to temporary and irregular housing conditions in defense areas, and the shortage of both refrigerators and refrigerator repair facilities. Flat rates established by the regulation originally were set up to cover rental to ordinary household users over indefinite periods of time, and were not intended to cover purely seasonal renting practices where rates generally are higher because of the peculiar services and accommodations provided, such as delivery to special locations, storage in off-season months, and the like.

Today's amendment, placing seasonal, rented refrigerators under the same type of flexible control as is used for other seasonal services will, OPA says, relieve from unwarranted hardship those firms which specialize in providing accommodations and services connected with seasonal renting. The text of the amendment is as follows:

Text of Exemption For Rentals For Resort Use

Part 139—Household and Service Industry Machines (Rev. MPR 139, Amdt. 1) Used Household Mechanical Refrigerators

A statement of the considerations involved in the issuance of this amendment, issued simultaneously herewith, has been filed with the Division of the Federal Register.

Revised Maximum Price Regulation No. 139 is amended in the following respect:

1. A new paragraph (e) is added in section 4 as follows:

(e) Seasonal rentals. Persons who rented refrigerators prior to April 1, 1942 for a period less than four months for use during that period in a resort community in households occupied by vacationers, shall compute their maximum prices in the manner provided by § 1499.103 (a) of Maximum Price Regulation No. 165. The ceiling price for rentals on a seasonal basis by persons who did not rent refrigerators on a seasonal basis prior to April 1, 1942, is the price in line with level of seasonal rental prices, fixed by the Office of Price Administration after application to it for the fixing of such a price. No such persons may rent refrigerators on a seasonal basis until such an order has been issued.

This amendment shall become effective July 20, 1943.

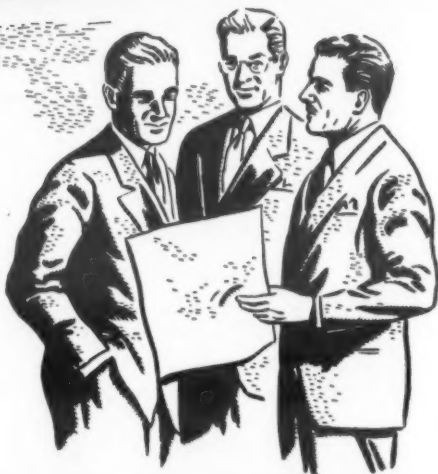
WHAT DOES THE "LABORATORY" REVEAL

ABOUT POSTWAR REFRIGERATING UNITS?



"LET'S ASK UNIVERSAL COOLER"...

JOHNNY DOUGHBOY's "tests" of Universal Cooler workmanship and materials, under all imaginable conditions on world battlefronts, are being recorded for reference and action when production of refrigeration units is resumed for the better living to which all America is looking forward. Already much of this vital information is available to you, for your postwar planning, when you "ask Universal Cooler."



WRITE TODAY—our expanded research-engineering is prepared to handle your inquiry regarding refrigeration units for: Frozen food cabinets • Food storage refrigerators and display cases • Ice cream cabinets • Water and/or beverage coolers • Commercial refrigeration equipment • Air conditioning • Machine tool cooling equipment • Other applications you're planning. — REFRIGERATION IS OUR BUSINESS!

UNIVERSAL COOLER

WE SELL TO MANUFACTURERS ONLY

UNIVERSAL COOLER CORPORATION • Automatic Refrigeration since 1922

MARION, OHIO • BRANTFORD, ONTARIO

Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

The answer is that most men in office today hesitate to involve themselves in controversy by making public statements of their views. So these conferences provide a means for getting ideas and information out to informed groups — information which might not otherwise become available.

Look 'Em Over

Among the men we have interviewed so far this year are:

President Roosevelt
Jesse Jones, Secretary of Commerce.

Francis Biddle, Attorney General.
James F. Byrnes, Economic Stabilization Director.

Prentiss Brown, Price Administrator.

Senator Tom Connally, Chairman of the Foreign Relations Committee.
Gov. Paul V. McNutt, Chairman of the War Manpower Commission.

Donald Nelson, Chairman of the War Production Board.
Elmer Davis, Director, Office of War Information.

Charles E. Wilson, Executive Vice-Chairman, WPB.

Eric Johnston, President of the Chamber of Commerce of the U. S.
Hon. Harold Butler, Minister of Great Britain.

Sir Arthur Salter, head of the British Merchant Shipping Commission.
William L. Batt, Vice Chairman, War Production Board.

William H. Davis, Chairman of the National War Labor Board.
Hon. Oliver Lyttelton, British Minister of Production.

Sir Walter T. Layton, chief adviser on program and planning.
Sir William Rootes, chairman, British Supply Council.

Ferdinand Eberstadt (formerly of WPB).
J. A. Krug, Vice Chairman, War Production Board.

Leon Henderson, (former Price Administrator).
Robert P. Patterson, Under Secretary of War.

Lewis W. Douglas, War Shipping Administration.
William M. Jeffers, Rubber Coordinator.

General Lewis B. Hershey, Director Selective Service System.
Senator Theodore F. Green of Rhode Island.

Gov. Herbert Lehman, Director of Foreign Relief and Rehabilitation Operations.
Major Gen. L. H. Campbell, Chief of Ordnance.

Milton S. Eisenhower, Associate Director of OWI.
Gardner Cowles, Assistant Director of OWI.

Senator Albert W. Hawkes of New Jersey.
Lt. General Brehon Somervell.

Colonel John J. Llewellyn, in charge of British procurement in the U. S.
In addition, there have been conferences with such industrial leaders as:

Alfred P. Sloan, General Motors Corporation.
F. E. Williamson, President of the New York Central Railroad.

Col. W. Gibson Carey, Jr., President Yale & Towne Mfg. Co.
William B. Bell, President, American Cyanamid Company.

R. W. Gallagher, President, Standard Oil Company of New Jersey.
Lewis H. Brown, President, Johns-Manville Company.

H. O. Bergdahl, Manager, Associated Merchandising Corp.
A. C. Thompson of the Retailers' Research Association.

C. M. Francis, President, General Foods Company.

Charles A. Higgins, President, Hercules Powder Co.

Arthur C. Kaufman, head of the Gimbel Store and President of the Philadelphia Merchant Association.
Ernest Bridgwater, DuPont Company.

David J. Finn, Radio Corporation of America.

Ralph Kelly, President Baldwin Locomotive Company.

M. Albert Linton, President, Provident Mutual Life Insurance Co.

William S. Jack, President, Jack & Heintz.

Furlough Tales

Not long ago we detailed some of the experiences of our former Mail Room Manager, Sergeant Dick Neuman, who was shot through the elbow while leading a machine gun company charge on Sanananda Point in New Guinea. (By the way we hope to have him back with us soon).

Dick was here for a few days again last week, and recalled a refrigeration story. It seems there was quite a bit of army refrigeration equipment on New Guinea, but hardly enough. All they had was loaded with food and medical supplies. (Soldiers carried some small units on their back through the jungles, so as to have serums handy for the wounded).

Anyway, there was no space available to keep beer cold. So the boys solved that by sending cans of beer up with high-flying fighter planes. When these returned from the cold upper strata, the beer was ice-cold. Christmas Day a major went up with a couple of kegs of beer, and when he came down they had quite a party.

Dick was wounded the day before Christmas. On the way back to Australia, the hospital plane in which he rode was jumped by 30 Zeros. They got through to Australia without losing a man, thanks to some P-38's.

Magnetic North Pole

Sergeant Jim McCallum of the Army Air Forces (who used to be an Assistant Editor of the News) also dropped in on furlough, after spending months flying around over the frozen wastes of Canada and the Arctic regions.

Among other things they flew over the magnetic North Pole to get certain data. Refrigeration, we gather, is no problem up there.

Sailors Back, Too

Also back for furloughs came Ed Henderson, who used to be our Circulation Manager, and Lieut. (j. g.) Jack Adams, who was our Business Manager. Jack had finished his schooling at Quonset Point, R. I., and Norfolk, Va., and is now en route to what may prove to be an exciting assignment.

Radarman Henderson has had a lifetime of excitement already. For the last year he has been riding all over the Atlantic in a "tin can" (destroyer), on convoy duty, on sub patrol, and whatnot. He and his ship were under fire when our forces invaded North Africa; and some of the things he saw and went through would not make pleasant reading.

All the boys are in wonderful physical condition—they look marvelous. Their morale is of the best, too. God bless 'em. And keep them well!

Few Casualties

Best news of the war so far is the fact American casualties have been

so light in the Mediterranean fighting. Huge losses had been predicted. They didn't materialize in Tunisia. They haven't materialized in Sicily. They may come later, but there's reason to hope our Army's new conception of the use of airpower will save us the tragic losses which we faced.

This is one piece of good news which should bolster home front morale. It may be unwise to be too pleased publicly about our favorable military position—because of the effect it may have on labor output—but certainly nothing but good can result from the knowledge that our boys aren't being killed in the predicted large numbers.

Shipping Surplus

Most fruitful victory of the war so far for our side is not the Tunisian campaign, the Sicilian campaign, our unbroken series of successes in the Pacific, or the aerial devastation of Europe—great and satisfying as all these may be.

Biggest victory is that of winning the battle of shipping. Already we have turned out more cargo ships this year than in all of last year. Together, America and England may turn out 22 million tons of shipping in 1943.

This tremendous total is increased by at least 4 million tons gained through the opening of the Mediterranean.

Even more important is the rather sudden victory over the submarine. It had been predicted that we might lose up to 12 million tons of shipping to the submarine this year. Now it

is being said that sub losses may be less than 2 million tons in 1943, if all continues to go so well!

This not only adds up to an enormously greater tonnage of shipping than we had planned for, but gives us the additional war supplies which won't be sunk! In planning production due allowance had been made all along the line for probable losses in transit to the submarines.

Unless the Germans devise some new counter-measure to our counter-measures, we can overwhelm all fronts with a deluge of supplies this year. All of which may cut at least a year off the length of the war.

It also may well mean increased imports of foodstuffs to this country—bananas, for instance, coffee, and cocoa; also meat and grain from Australia and South America.

This news is considered too good to be emphasized to the general public, lest strikes and slow-downs follow in the wake. Subscribers of this technical publication will know how to take it in stride.

The Stronger Sex

In Washington's modernistic new Hotel Statler a woman is the engineer in charge of the refrigeration and air conditioning systems.

Her name is Gladys Hufham, and she is the wife of a Navy lieutenant. In the last war she was a gunmaker for Remington Arms.

Knives & Forks

Production of tableware—knives, forks, and spoons—is to be upped around 20% by the War Production Board. Reason advanced by the Office of Civilian Requirements is that

people are stealing them from hotels and restaurants at an unprecedented rate.

Certain types of people, with war-swollen incomes, are now patronizing hotels and restaurants in great numbers, and are walking away with souvenirs of their unaccustomed visits.

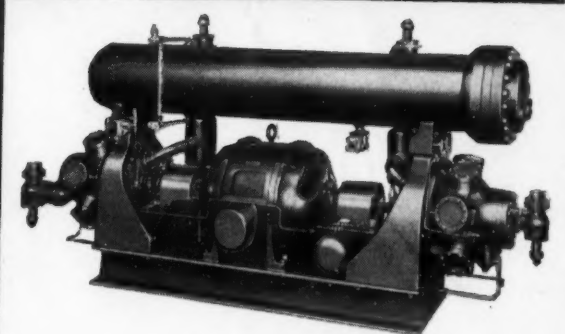
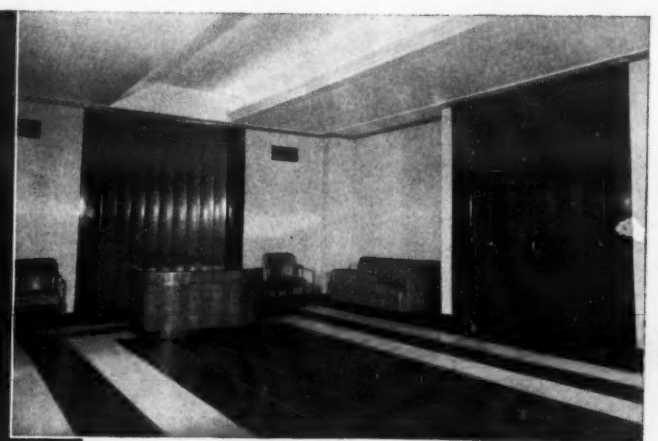
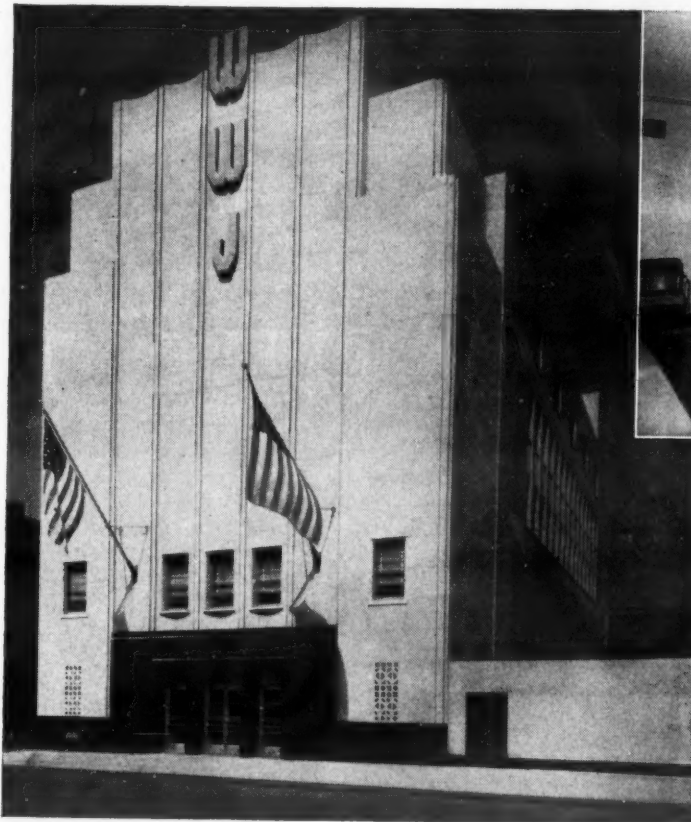
What we wonder is: what are customers going to eat in hotels and restaurants, if better provision is not made for commercial refrigeration equipment? People can eat with their fingers, if they have to, but they can't eat spoiled food that never gets to them; and if they eat unrefrigerated perishables, they wind up the already overcrowded hospitals under the ministrations of the already overworked doctors.

Price Levels

Informed guessers within the Treasury Dept. have made the following off-the-record predictions about coming inflationary price levels:

By the end of the war, the price level may show a 50% increase over that which prevailed at the time of Pearl Harbor. After the war, the postwar boom may hike prices up to a 100% increase over the prewar level. Then a gradual settling down would follow until the level again reached the point it had attained at the war's end.

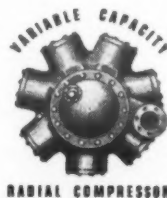
These economists rather expect this inflated price level to stay up there for a long time. Provisions are being made now to prevent the dumping of upwards of \$50,000,000,000 in war accumulated stocks of goods after peace comes. Lend-Lease and rehabilitation programs are expected to soak up these surpluses.



14 Cylinder Condensing Unit

"April 1st, we push a button!"

W W J



RADIAL COMPRESSOR

When the beautiful new home of Radio Station WWJ—The Detroit News—was built eight years ago, Chrysler Airtemp installed the air conditioning system. Today, the variable capacity radial compressor, mounted on the floor over the soundproof studios operates continuously, day and night, seven days a week, throughout the entire cooling season.

Trouble-free performance and vibrationless operation have marked the installation as outstanding. Maintenance engineers, radio technicians, and artists have come to recognize the comfort and advantage of Chrysler Airtemp Air Conditioning Equipment. In fact, The News states, "All we do is push a button April 1st!" That tells the story.

When you have an air conditioning or refrigeration problem, turn to Chrysler Airtemp Heavy Duty Compressors for complete satisfaction.

FEATURES: Automatic Variable Capacity Control, Unloaded Starting, Direct Connected, Simplified Installation, Non-Flexing Valves, Practically No Vibration, No Special Foundations Needed, Interchangeable Parts, Light in Weight.

CHRYSLER AIRTEMP
AIRTEMP DIVISION OF CHRYSLER CORPORATION • DAYTON, OHIO

"Packaged" Units 3 & 5 H. P.—Direct Expansion and Water Cooling Systems — Commercial Refrigeration

POLARTRON

PRESSURE AND TEMPERATURE CONTROLS

Extra features equivalent to 32 or more Special models are STANDARD in every M-H Polartron.

MINNEAPOLIS-HONEYWELL REGULATOR CO.

Refrigeration Controls and Control Systems



The Symbol of Modern Refrigeration Control



Army Refrigeration Problems

By P. B. Reed

Electric Refrigeration and Air Conditioning Division, Servel, Inc.

Where Knowledge of Load Factors Would Have Aided Diagnosis

This is the first of a series of articles on various subjects connected with the installation, service and maintenance of low pressure compression-type refrigerating equipment. The series is directed and dedicated to Refrigeration Service Engineers, both military and civilian—to those comparatively few to whom the modern world is beginning to be aware that it owes so much—who work long and arduous hours that food may be preserved, that blood plasma may be available, that airplane instruments may be accurate in the stratosphere and that the thousand-and-one other applications of refrigeration may continue to function.

In these days of manpower and material shortages we all want to work as efficiently as possible and we would like to know ways to save time, material and work. There are many little "tricks of the trade" and

we will try to pass some of these on but we believe that the greatest waste of time, hard work and scarce and expensive materials comes from not being fully familiar with the equipment, and the way it works.

We'd all like "short cuts" but the best short cut of all is to be able to quickly recognize what is wrong and how to correct it. To avoid waste in time, energy and material we need to know our job better—always better, for we shall never be perfect. If, in some small measure this series shall save some time, some work or some material through giving a little better understanding of some of the problems in refrigeration service, then it shall have accomplished its purpose.

Don't Scoff at 'Theory'

The following is an example of how time, work and material may be wasted through lack of full understanding of some of the basic principles, for without this understanding we are just following rules-of-thumb—going through the motions blindfold. "Theory," sometimes despised as impractical is the backbone of successful diagnosis and correction

in refrigeration service. This example was taken from real life. It is not overdrawn, but unfortunately is typical of similar cases that show up quite often.

A new dry storage beverage cooler of a capacity of 40 cases of bottled beer was installed in the post exchange of a southern camp. Its evaporator was a blower coil with thermostatic expansion valve and a 1-25 hp. fan motor wired for continuous operation. The cooler was powered by a "Freon-12", ½ hp. air-cooled condensing unit. From the very first they couldn't cool the beer down to the desired temperature of 30°. Sometimes in the early morning it would go down to as low as 42° but usually up to 50° or above later in the day.

The service engineer had put on the gauges which showed 36 lbs.-square inch suction, 195 lbs.-square inch discharge pressure. He thought, because of the high discharge pressure of 195 lbs.-square inch that perhaps there was air in the system so he shut off the machine for 15 minutes and purged the condenser, but after the unit ran awhile the discharge pressure went right back up to 195 lbs.-square inch.

The suction pressure seemed quite

Army Post Engineers—either on their own or through the War Department—all over the globe have been subscribing to AIR CONDITIONING & REFRIGERATION NEWS during recent weeks.

These unsolicited subscriptions present a responsibility to the editors—the responsibility of providing these men-in-uniform with the information they need to operate and keep in operation Army refrigeration equipment of every variety.

Toward this end we have written each of these soldiers, asking him what kind of information he needs. Their questions will provide the basis for this series of articles.

Civilian refrigeration men can profit, too, by reading this series; because the problems faced by these Army engineers comprise a whole new type of knowledge which every engineer in the industry should add to his store.

high so he readjusted the expansion valve—to feed less "Freon-12" but that didn't help any, in fact it seemed as if the beer was not as cold as before, although it did lower the suction pressure and the discharge pressure somewhat.

He 'Cuts and Tries'

He finally decided that the compressor wasn't pumping well so he took off the valve plate assembly and looked at the valves. They seemed to be all right so he put them back together. Now it was definitely worse so he took off the compressor and replaced it with a spare. A little better but still the beer wasn't cold enough and the unit was running all the time. By this time the motor was giving trouble—running very hot and smelly and throwing solder from the commutator. So finally in desperation he wired the factory who made the cooler to send another condensing unit. It so happened that the factory had a field representative about a hundred miles away so they wired him to investigate.

When he arrived the place was full of customers even though the beer wasn't very cold. The unit was still running continuously. He checked over the equipment and stated that everything was okay—nothing wrong. This was greeted with "Yeah, but the beer is warm—this thing is supposed to make the beer cold, isn't it?"

The Load Factors

Upon inquiry he found that although the capacity of the cooler was 40 cases (960 bottles) per day they were actually selling about 2,000 bottles (83 1-3 cases) per day. The heat leakage of the cooler was about 60,000 B.t.u.-24 hours and the beer load from 95° to 38° was 102,600 B.t.u. for 2,000 bottles at the rate of .9 B.t.u. per bottle per degree temperature difference from 95° to 38° F. This made a total load of 162,600 B.t.u.-24 hours.

The condensing unit capacity was 5,800 B.t.u.-hour or 139,200 B.t.u.-24 hours so that it was obviously unable, even by running continuously, to carry the load of 162,600 B.t.u.-24 hours. By running continuously (139,200 B.t.u.-24 hours) it would have 79,200 B.t.u. over the heat leakage of 60,000 B.t.u., which would enable the unit to cool 1,314 bottles, or 54% cases.

Solving the Problem

It could handle 40 cases per day by running 18.8 hours out of the 24 (60,000 B.t.u. heat leakage plus 49,249 B.t.u. beer load, total 109,248 B.t.u., divided by 5,800 B.t.u.-hour equals 18.8 hours).

The problem was solved by the post exchange buying another cooler just like the first one, which gave a total capacity of 80 cases (1920 bottles) per day normally but a peak capacity of 109½ cases (2,628 bottles) per day. Since they normally served about 2,000 bottles per day this enabled them to operate the coolers loaded normally, and at rated capacity.

The factory representative did caution them, however, on the manner of loading the warm beer into the coolers. He advised loading frequently in small quantities and to rotate the sections in the cooler: to use one section out completely and then reload it and dispense from another section, thus taking the sections in rotation and giving plenty of time for each section to cool between loading and dispensing.

The motor was removed, the commutator cleaned and resoldered and reinstalled. The expansion valve was readjusted to make the coil fully

active. The valve plates and valves on the compressor that was removed, were relapped and the compressor put back in stock as a spare. It was too much for the service engineer to have expected the valves to reseal perfectly on the plate after they were removed. The lines in the valves and seats should have been lapped out when reassembling them.

Here was a case where the service engineer failed to realize how much load 2,000 bottles of warm beer would impose. Five minutes with a pencil and paper would have shown him that there was nothing wrong with the unit but that it was hopelessly overloaded. Then too, he should have recognized the mechanical clues—high head pressure, high suction pressure, continuous operation of the condensing unit and the heating of the motor.

He wasn't to be blamed too much; he'd had put a few weeks training and a few months experience—he just didn't know nor had he had a sufficient background of experience; but by properly diagnosing the trouble at first as simply overload he would have saved himself a lot of time and work as well as inconvenience and additional work to others.

Sees Greater Postwar Volume Resulting In More Employed

BOSTON—F. F. Hoyt, vice president and controller of the Carrier Corp. expects to see increased volume of post-war business turned into employment instead of, as in the past, into larger profits, a group of cost accountants learned recently when the Carrier executive addressed their National Association. He said at the same time that the rate of profit will be determined by the degree of intelligence with which cost control is exercised.

Hoyt believes that to reach the desired increase of volume and provide that stability of employment which is the post-war goal of all business, legitimate reduction in costs will have to be made, thus establishing basic selling prices.

He further believes that now is the time to start the procedure so that the government will be benefited by lower prices which, in turn, should bring lower taxes and place more money in contingent reserves.

"Because the average small corporation will find itself short of working capital for the post-war period of reconstruction, it must rely on outside financing," he said. "Whether it avails itself of public financing or bank credit, its earnings record will be subjected to close scrutiny and it must have demonstrated its ability to control expenses," he continued. "The new provisions in the revenue code which allow operating losses to be carried backward for two years provide a reserve that may reach very substantial proportions, but that reserve can easily be dissipated by lack of expense control now."

C. Howard Knapp, assistant treasurer, Holtzer-Cabot Electric Co., Boston, who addressed the meeting of cost accountants on the problem of wartime inventories came out with a criticism of the idea stemming from Washington which holds that "selling expense, including advertising, could and should be drastically curtailed during the war emergency."

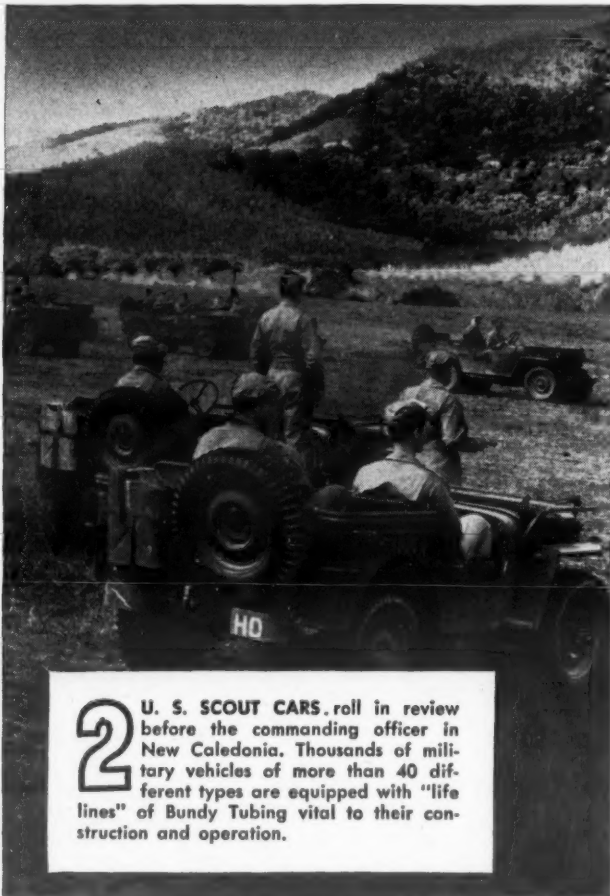
He contends that too many businesses have been forced into energetic advertising campaigns because of war conditions alone.

FAMOUS LIFE LINES



1 LONELY ATTU, most westerly American outpost in the northern Pacific, points a dagger at Japan. Here's the Village of Attu (population 38 natives)—nestling amid snow-clad mountains, recently the scene of bitter and victorious fighting.

Official U. S. Navy Photograph



2 U. S. SCOUT CARS roll in review before the commanding officer in New Caledonia. Thousands of military vehicles of more than 40 different types are equipped with "life lines" of Bundy Tubing vital to their construction and operation.

Official Signal Corps Photograph

JUST as the life of an army overseas depends on its lines of supply—so the fighting life of a plane, a tank or a ship depends on slender lines of metal tubing.

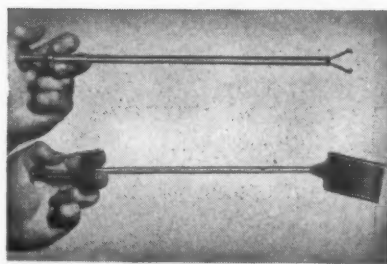
Gas, oil, brake and pressure lines for every type of vehicle. Fuel lines for marine engines. Structural and mechanical tubing for radios, aircraft, gliders and tanks. Refrigeration lines for the powder rooms of war vessels.

Bundy makes them all, and many more—tubing used for more than

5,000 different parts in the vehicles and equipment of our fighting forces.

These life lines must not fail. They must stand up under the toughest kind of punishment on faraway fronts. So Bundy builds the best tubing it can build—in the largest quantity possible in greatly expanded plants.

We'll keep on doing just that until Victory—when we shall turn again to the service of peacetime industry. Bundy Tubing Company, Detroit, Michigan.



SPECIALIZED TOOLS, made with Bundy Tubing, are helping the aircraft and other industries more quickly to install and inspect small parts. Bundy Tubing was selected because of its light weight and sturdy strength.

Buy U. S. War Bonds
Get in Your Scrap

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS



BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including 1½" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.



BUNDY ELECTRICWELD steel tubing. Single-walled—but welded—annealed. Available in sizes up to and including 2" O. D. Can be furnished tin-coated outside in smaller sizes.



BUNDY "TRIPLE-PURPOSE" tubing. Double-walled, rolled, from two strips, joints opposite, welded into a solid wall. Available in all Monel; all steel; Monel inside—steel outside; Monel outside—steel inside. Sizes up to and including 1½" O. D.

Wider Use of Refrigeration Anesthesia Technique Sought in War Surgery

CHICAGO—The beneficial effects of refrigeration anesthesia in the care of war wounds of extremities as well as in civilian surgical operations are emphasized in an editorial in a recent issue of the "Journal of the American Medical Association."

The slowness of the medical profession to adopt this new method comes in for some criticism in the editorial.

In the method of refrigeration anesthesia a soldier's badly wounded arm or leg is packed in chipped ice (or some other method of cold packing) and a tourniquet applied. Within about two hours the surgeon can proceed to operate without any further anesthetic being given.

This procedure avoids the necessity of giving a general anesthetic such as ether for treatment of a minor wound, and avoids subjecting the severely wounded man to the added burden of a general anesthetic.

The new method has the added advantage of helping to prevent or treat shock which is likely to develop after wounds.

Because the refrigeration treatment reduces the consumption of oxygen by the tissues, the tourniquet can be left on for many hours without danger of decay and death of the arm or leg. This avoids the suffering and blood loss from periodic loosening of an emergency tourniquet.

'Future Generations... May Wonder'

"Future generations may find it difficult to understand why it is taking us so many years to appreciate the significance of reduced temperature," says the "Journal" editorial. "Little thought has been given to temperature physiology by most of us, except for rather empirical fever observations."

"Attempts are still made to keep tissues at 'normal' temperature in spite of the rebellion of many patients with peripheral vascular disease. The usefulness of maintaining life processes at a reduced rate by lowering the temperature is still not generally understood. Perhaps this is due in part to the erroneous tradition that external heat should always be applied for the prevention and treatment of traumatic shock."

"Recent reports indicate that in combat areas military surgeons are largely occupied with the care of injuries of the extremities. The older methods of anesthesia for these cases are not completely satisfactory. In minor cases general anesthesia frequently seems out of proportion to the primary condition, and in severe cases the added burden may be dangerous."

Life Processes Slowed

"Life processes, in common with chemical reactions, have a speed which is profoundly influenced by temperature. Oxygen consumption of the tissues can be reduced about 13% for each degree centigrade. When a tourniquet is applied and the extremity is packed in ordinary chipped ice (without salt) the oxygen demands are reduced sufficiently to prevent necrosis for many hours. The skin temperature falls to 2 to 4° Centigrade, and surgical anesthesia is complete within about two hours."

Stating that "actual experience with the procedure convinces surgeons, internists, nurses and especially patients that it is a far more conservative and sensible anesthesia than the commonly accepted methods," the editorial concludes by saying:

Prevention of Shock

"Refrigeration offers advantages for nearly all cases of severe wounds of the extremities. Prevention and treatment of shock may be sufficient indication; surgical anesthesia is a valuable by-product. The suffering and blood loss from periodic loosening of an emergency tourniquet can now usually be avoided. Certainly external applications of heat should never be used in conjunction with a tourniquet. Simple measures can and always should be instituted to help cooling whenever a tourniquet is applied. This is especially important in hot environments."

"The large scale program of medical education for war which is now

in progress should include instruction in temperature physiology and advanced courses in the principles and practice of refrigeration anesthesia. Anesthetists should not cloister themselves in the surgery and devote their lives to the dogma and rituals of the past. These subjects must be made known to all."

And the magazine "Hygeia," reporting on the same subject, says:

"Refrigeration anesthesia is becoming routine for amputation in cases of diabetic gangrene. Because victims of this disease are usually old people, they are not considered good operative risks. But Dr. Harry E. Mock of Chicago reports that mortality following amputation in severe cases has been spectacularly reduced by the 'cold treatment.'"

"The reason for the effectiveness of ice is that cold slows down all the processes of life. (A man whose

whole body is being artificially cooled takes four days to grow the same length of beard that a man at normal temperature grows in 24 hours).

"In any operation, the shock produced by the body's own poisons is one of the chief dangers. But when a part of the body is thoroughly chilled, it produces less of these toxic substances. Cold also inhibits the spread of bacteria through an infected wound."

For Bombed Populaces

Discussing the matter further, "Hygeia" declares:

"English physicians have been studying the use of ice for bombed civilians. Many people, trapped by fallen debris in the great raid on London, were dug out apparently uninjured, only to die inexplicably

a few hours later. It is believed that the poisons stored in a trapped limb, when suddenly released, can bring on a fatal shock."

"For such cases the 'Lancet' suggested that the remedy might be to apply cold treatment and a tourniquet, even though there was no wound and no bleeding, so that the toxins in the affected limb could be released more gradually into the rest of the body."

Used in Skin Grafting

Another recent issue of the "Journal of the American Medical Association," has an article by Lieutenant Harry E. Mock Jr. of the Medical Corps of the United States Army on "Refrigeration Anesthesia in Skin Grafting."

Lt. Mock reported that in 27 cases requiring small or multiple small split thickness skin grafts this method was used. Results were so satisfactory that he submitted the report on his work for general consideration.

In the technique described, one or more uncovered ice bags are applied

directly to the area from which the skin is to be taken about two hours before the operation. Slight pressure was found to deepen the anesthesia, so the practice has been to tie or bandage the ice bags in place. The maximum anesthetic effect lasts approximately 20 minutes after the ice bags have been removed.

Complete anesthesia was obtained in 24 of the 27 patients prepared by refrigeration. The three patients with incomplete anesthesia complained of burning sensation when the graft was cut, but it was not sufficiently acute to necessitate another form of anesthesia. In each of these cases it was found that a full two hours had not been allowed for chilling.

Refrigeration does not noticeably affect the growth of the graft or the repair of the donor site. Complete healing occurred in two or three weeks in almost every case. Successful grafts were obtained in 23 of the cases, but in none of the cases could the failure be attributed to the anesthesia technique.

The advent of refrigeration into medical and surgical techniques has just begun, the article summarizes.

STANDARD TUBULAR FITTINGS

HEADERS AND MANIFOLDS
COMPLETE AND SEMI-FINISHED

SINGLE PIPE and DOUBLE PIPE
COPPER COILS

SPECIAL TUBULAR ASSEMBLIES
FILTERS · DRIERS · HEAT INTERCHANGERS

MACHINE FORMED TUBES

● Copper Coil Headers with integral sockets for brazing lateral tubes offers a modern and economical approach to any manifold problem. Designs can be modified to meet your special requirements.

Copper Pipe Coils are manufactured in a multitude of shapes and sizes. Smooth, round bends and exact dimensions are characteristic of Mueller Brass Co. Coils. We make our own copper tubing—exactly the right grade as specified for the particular part.

We specialize in tubular assemblies, wrought copper solder type fittings and return bends. Our equipment is most modern and adapted to low cost high quality production.

All tools for fabricating, forming and otherwise processing tubing are made in our own tool department—the best possible tools for the job are thus obtained with the least possible delay.

If you have requirements for specially fabricated copper tubing, drop us a line. If you have a problem, our engineers will be glad to help.

MUELLER BRASS CO. • PORT HURON, MICHIGAN

- ★ Are More Accurate
- ★ Can be produced Faster
- ★ Are generally less costly



MUELLER BRASS CO.

Port Huron, Mich.

STREAMLINE PRODUCTS

Directs Engineering



HAROLD D. KELSEY

Kelsey Named To Ft. Wayne G-E Post

FT. WAYNE, Ind.—Harold D. Kelsey has been appointed assistant to the manager in charge of engineering at the Fort Wayne works of the General Electric Co., reports M. E. Lord, works manager. He succeeds the late R. H. Chadwick.

A native of Syracuse, N. Y., Mr. Kelsey entered the employ of the company in 1920 after being graduated from Syracuse university.

In 1929 Mr. Kelsey was appointed engineer in charge of the engineering section of the centrifugal compressor department at the Lynn River Works. Three years later he was also made engineer in charge of the mechanical drive section, turbine department, at the Lynn Works. He continued in this capacity until 1931, when he was named engineer in charge of the engineering section of the air conditioning department at Schenectady and Bloomfield, N. J.

Mr. Kelsey was appointed engineer in charge of air conditioning and commercial refrigeration departments in 1939. In August of 1941, he became engineer in charge of the engineering department of the Fort Wayne Works and held that position until his present appointment.

Henry J. Mollenberg Buffalo Pioneer, Dies

BUFFALO—Henry J. Mollenberg, a pioneer in the refrigeration field and president of the Mollenberg-Betz Machine Co. died at his home here recently at the age of 75.

While still a young man, Mollenberg became head of the ice-machine department of the old Iron Works. This connection lasted until the Otis Elevator Co. took over the firm, at which time he and Jacob Betz organized their company for the manufacture of refrigeration equipment. The firm has been a factor in the "large machine" field here ever since.

Harold J. and Richard H., Mollenberg's two sons, hold vice presidencies in the company.

Philadelphia Service Managers Organize

PHILADELPHIA.—Electric refrigeration service managers, representing refrigeration distributor members of the Electric Association of Philadelphia, have organized an official unit of their own to be known as the Refrigeration Service Managers Group of The Electrical Association.

It was decided that regular meetings be held on the third Thursday of each month, and that through such meetings, the members not only could develop acquaintanceship with one another, but also keep abreast of current conditions and discuss problems that mutually effect each of the respective members.

L. A. Tucker, refrigeration service manager for J. J. Pocock, Inc., was elected chairman of the group.

Mahnke Is Advertising Manager For All-Steel

AURORA, Ill.—Frank C. Mahnke, Jr. has been appointed advertising manager for All-Steel-Equipment Co., manufacturer of frozen food lockers, the company announces.

Mahnke has devoted a number of years to work in the advertising and editorial field.

Besides building cold storage lockers authorized by the War Production Board, A-S-E is filling other government orders in conjunction with its usual line of steel lockers and office furniture.

Where Parachutes Are Dried For Canal Zone Fliers



Parachute drying tower for the drying of parachutes in the Canal Zone area. As the 'chutes land frequently in or near the sea, they must be thoroughly washed to remove traces of salt water and other matter that deteriorates the silk. Drying of the 'chutes is one of several stages in the care of this type of equipment which demands air conditioning.

Air Conditioning Performs a Life-Saving Function In the Drying of Parachutes

Deterioration Occurs If Air Conditions Aren't Controlled

WASHINGTON, D. C.—One of the many vital war roles being performed by modern air conditioning is in the drying and storage of parachutes. A case in point is the equipment installed recently in a parachute drying tower located at the Republic of Panama.

Because parachutists being trained at the air base frequently land in marshy or swampy terrain or even in the sea, it is imperative that their parachutes be immediately washed and dried to prevent deterioration.

DRYING TOWER SETUP

The drying tower consists of two sections. In one, 30,000 c.f.m. of heated air and 100,000 c.f.m. of outside air enter through nozzles on the ceiling and blow vertically downward over the 'chutes which are suspended from the ceiling. The air is exhausted at floor level.

After most of the free moisture (up to 25% by weight) is removed, the 'chutes are taken down and hung in the much larger section where the moisture content of the 'chutes is brought to the correct value. They are then removed to large air conditioned rooms for folding, packing, and storage.

At the base, three Carrier heat diffusers supply heated air to the two sections of the drying tower, while self-contained air conditioning units supply 50 tons of cooling effect for air conditioning for the folding, packing, and storage rooms and for offices.

Most parachute maintenance buildings will have a tower approximately

40 feet high where the parachutes are hung and fluffed out following the routine of 30 or 60-day inspection before repacking. It is important that the relative humidity within a drying tower be kept below 50% and that outside air be circulated through the tower to prevent mildew, which damages silk fabric. This may be accomplished either by using a dehumidifying unit comprising a compressor, evaporator, and hot gas reheat coil with fans for air circulation or by using a heat diffusing unit.

In some parachute maintenance buildings bins are provided for storing packed parachutes. This section is partitioned off from the rest of the shop and equipment is provided to keep the space ventilated and the humidity below 50%. In some cases it has been possible to install bins in a section of the drying tower and to combine the two functions in one piece of apparatus.

KEEP HUMIDITY LOW

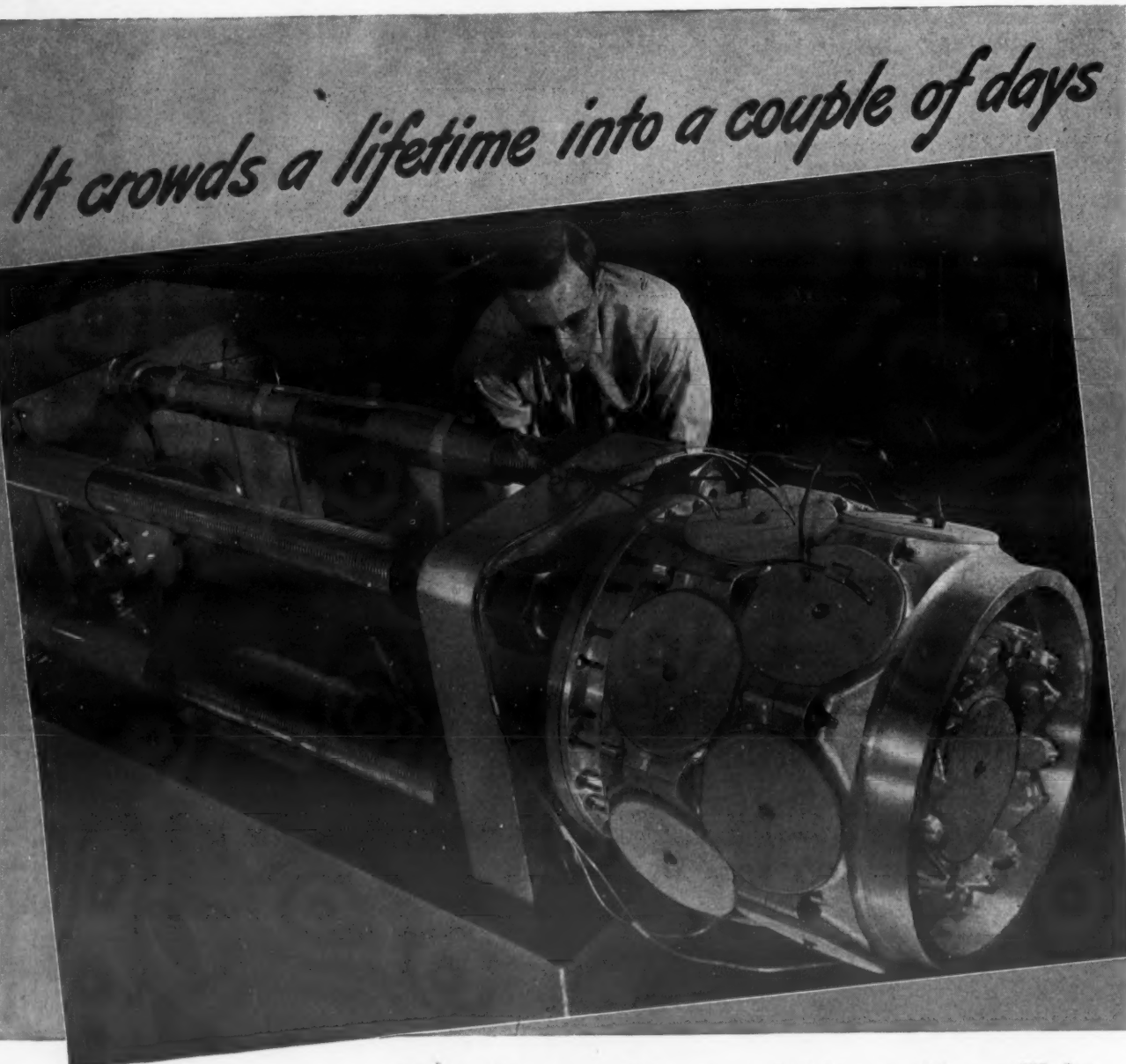
In the tropics and at some advanced bases where heating units are impractical from the fuel standpoint, a dehumidifying unit is the economical and practical choice for maintaining proper conditions in drying towers, Carrier engineers point out.

They also state that in some tropical work rooms, complete air conditioning has been installed to prevent dust and excessive sweating of parachute riggers, thus preventing perspiration from dripping on the 'chutes while they are being folded. In such cases, 80° DB and 50% RH are provided.

An Air Conditioned Room at a Naval Air Station



Located in the operations building of a Naval Air Station is a parachute storage room which is air conditioned to insure against deterioration of the 'chutes when they are not in use. By controlling the relative humidity, mildew is prevented from forming on the 'chutes.



It crowds a lifetime into a couple of days

After the war, this remarkable machine will be available for testing your refrigeration equipment

Gone are the days when "running to destruction" meant months of uncertainty. This machine at Alcoa's engine research laboratory determines the facts about a part within a few hours or days! You learn what's what while the design is alive.

On test, when this picture was taken, was a forged aluminum alloy airplane engine crankcase. Pistons, cylinder heads, connecting rods, bearings, are other typical pieces tested here, under conditions like those encountered in actual service. In peacetimes, these could just as well be parts for your refrigeration machinery.

Newly designed parts, not yet placed in pro-

duction, can quickly be tested to destruction. Corrective changes can then be made, if necessary, and the parts retested. Or production procedures can be checked and anything suspicious ruled out. The engine builders learn within a few days how new parts behave and, as a result, our fighting men are getting better, more reliable equipment.

Think what this pretesting will mean to you, when you start designing for peacetime production. It's another good reason for specifying ALCOA Aluminum Alloys. ALUMINUM COMPANY OF AMERICA, 1975 Gulf Bldg., Pittsburgh, Penna.

ALCOA ALUMINUM



Refrigeration and Air Conditioning As a War Production Tool

By L. W. Clifford, Sales Development Section Supervisor,
Westinghouse Electric & Mfg. Co., East Springfield, Mass.

Fabrication & Assembly of Plywood Parts

In the manufacture of plywood and in its fabrication and assembly we find another process where a number of manufacturers have stated that, without air conditioning, production could not continue.

This is particularly true in the production of molded plywood parts where the wood laminations, coated with the resin adhesive, are wrapped on mandrels, or forms. When the required number of laminations have been built up, the whole assembly is put into the molding room. There, under combined conditions of heat and pressure, the laminations bond together into a strong, durable part.

Propellor noses, wing sections and fuselage sections, for example, are made in this way for many of the hundreds of planes and gliders which are being turned out by our factories.

The problems encountered in the production of molded plywood without air conditioning in the wrapping room are numerous. The wood laminations, being hygroscopic, will have a moisture content which varies with the relative humidity of the room where they are stored and fabricated.

Moisture absorption from high relative humidity causes expansion of the wood laminations and too much drying out of the wood from a too low relative humidity causes shrinkage. Therefore, it is impossible to obtain a perfect fit of the prefabricated laminations when they are wrapped on the mandrel if the relative humidity of the room has changed from day to day.

The answer, therefore, lies in holding the wrapping room at a relatively constant condition, which conditions are agreed upon as 70-75° and 50-60% relative humidity. If the laminations are stored in the air conditioned wrapping room for about 10 days before being used, the moisture content will be about 8 to 10% and perfectly fitted molded products will result.

In many plants where flat sheet plywood is made these same problems are encountered unless a continuous production set-up moves the plywood quickly from the drying tunnels to the molding presses. If this is not done, and the moisture content of the wood increases to a point above 18%, steam pockets will form in the wood laminations while in the presses and, when the pressure is relieved, blisters will form, and the plywood sheet rejected for use.

A problem very similar to that encountered in the assembly of close tolerance metal sub-assembly parts, which have been produced under widely varying room temperatures, is encountered in plywood plane or glider assembly.

Assume, for example, that three sub-assembly parts for a glider are purchased from three different plants where widely varying conditions of relative humidity existed at the time of their manufacture. The moisture content may vary in the three parts from 5 to 15%. When these parts

are brought together for assembly and all stabilize in moisture content according to the relative humidity of the assembly room, the resultant expansion and contraction will cause stresses to be set up in the assembly joints, and fractures may occur.

The U. S. Government, before acceptance of plywood planes and gliders from manufacturers, requires that all plywood parts have a specified moisture content.

One plant uses a combination well water and 10 ton chilled water system operating to maintain suitable conditions in the wrapping room where plywood parts are fabricated.

Air Control Is Termed 'First Consideration' In Gyro-Compass Program

SPRINGFIELD, Mass. — With air conditioning the first consideration, a re-tooling program has just been completed by the Package Machinery Co. here in preparation for production of gyro-compasses for the Navy.

Because of the nature of compass construction, it is necessary for them to be assembled in cooled air and in surroundings spotlessly clean. Company officials say compass tests will run continuously 24 hours a day.

The importance of air conditioning in this phase of war work is pointed to by Package engineers who report that if the temperature of the room registers a normal outside temperature without air conditioning, heat generated by the compasses would send the thermometer up 25 degrees in less than an hour.

New 'Amcoil' Cabinet For High Altitude Testing Introduced

NEWARK, N. J.—Development of a high altitude test cabinet with a removable chamber and other improvements is announced by American Coils Co., 27 Lexington St., manufacturers of low and high temperature and humidity test chambers.

Combined with a vapor proof mechanical refrigeration cabinet is an enclosed vacuum chamber which can be extracted intact for changes or repairs. This feature, the engineers say, is an aid to laboratory work.

The unit is equipped with a coil, situated above the vacuum chamber, of sufficient size to take care of complete pull-down and heat leakage. Another coil is located within the altitude chamber to remove heat automatically by force.

A device, claimed by the company

as a departure from earlier designs, is the floating glass seal in the vacuum chamber by which the interior of the vacuum chamber can be dehydrated with the overhead coil and then sealed previous to pre-heating for obtaining low relative humidities.

Measuring overall 72½ x 101½ x 49 inches, the "Amcoil" chamber is built to maintain temperatures ranging from -70° C. or -55° C., to +70° C. and pressure, from atmospheric to 60,000 feet.

Commercialaire Takes More Plant Space

NEW YORK CITY — Commercialaire, Inc., manufacturers of ventilating appliances, will occupy in the near future several floors of the four-story building recently purchased by them from the Hall Street Cold Storage Warehouse Co., business sources report. The building is located at 300 Pacific St., Brooklyn.

Safe deposit vaults for blood banks



WHAT HAPPENS TO YOUR BLOOD between the time you donate it at a receiving station and when it's delivered as powdered plasma to save a soldier's life?

First thing, the blood is chilled to about 40°F. and forwarded in refrigerated containers to a processing laboratory. Here, still chilled, the blood is put in a high-speed centrifuge that works like a cream separator—separating the red and white cells from the clear liquid plasma.

Then this liquid plasma is frozen to about 4°F. below zero, stored for a while, and is presently put in a high vacuum which draws out the water. What's left is soft, straw-colored, powdered plasma—which is sealed and shipped wherever it may be needed.

Notice what a big part refrigeration plays—all the way from donor to powdered plasma. All the way along, refrigeration is a constant safeguard.

Making blood plasma is only one of many wartime jobs in which refrigeration

is essential and in which safe "Freon" refrigerants are used—the same safe "Freon" refrigerants that chill your refrigerator and help air conditioning keep you cool in summer.

Today, "Freon" refrigerants are doing their most important work in war plants, in hospitals, and with the armed forces. When the war is won, they will take up where they left off—bringing you the benefits and protection of refrigeration and air conditioning at their best. Kinetic Chemicals, Inc., Wilmington, Delaware.

GIVE SOME BLOOD AND SAVE A LIFE!



FREON

REG. U. S. PAT. OFF.

safe refrigerants

"Freon" is Kinetic's registered trade mark for its fluorine refrigerants

**Telling
Your Story
to the
PUBLIC**

← Take a good look at this advertisement. It appeared in the July 26 issue of TIME Magazine. It is the third of a series, directed at every one of TIME'S 2,389,593 readers—one of the best-informed, most influential groups in America.

We want you to see and read this advertisement because it was intended to aid the entire refrigeration industry. It gives interesting, concrete information to the public about how refrigeration and air conditioning are serving Uncle Sam, helping to bring Victory closer . . . and it offers a glimpse of better things to come. Kinetic Chemicals, Inc., makers of "Freon" safe refrigerants.

Post Theater Is Proved Too Hot So Engineers Install Cooling Job

GREENVILLE, Miss. — The new post theatre of the Greenville Army Air Field training center here, which was completed a few weeks ago, will be closed indefinitely while air conditioning is installed, it was announced by the post engineer's office. Seating 700, the new theatre has proven uncomfortably hot after exposure to the sun during the day, too hot to allow summer operation without air conditioning. Consequently, it has been closed while a 25 ton air conditioning system is installed, and the wooden benches originally specified will be replaced by cushioned seats. It's all part of the Army's program of giving its enlisted men comfort and entertainment of the best possible kind.

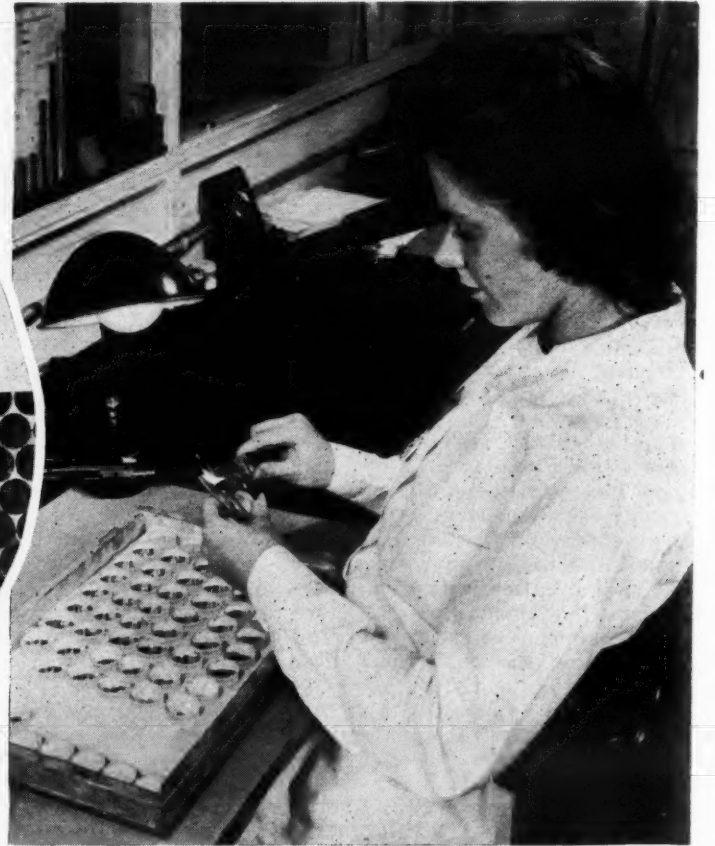
Improved Gunsight Lens Production Reveals Value of Air Control



These telescopic prisms must be perfect to one ten-thousandth of an inch. Each egg-basket case holds 98 of the prisms.



Air moves through the filter toward the worker, carrying any dust or lint away from gunsight she is working on.



When finally ground, polished, and centered, each lens is checked for thickness with precision calipers.



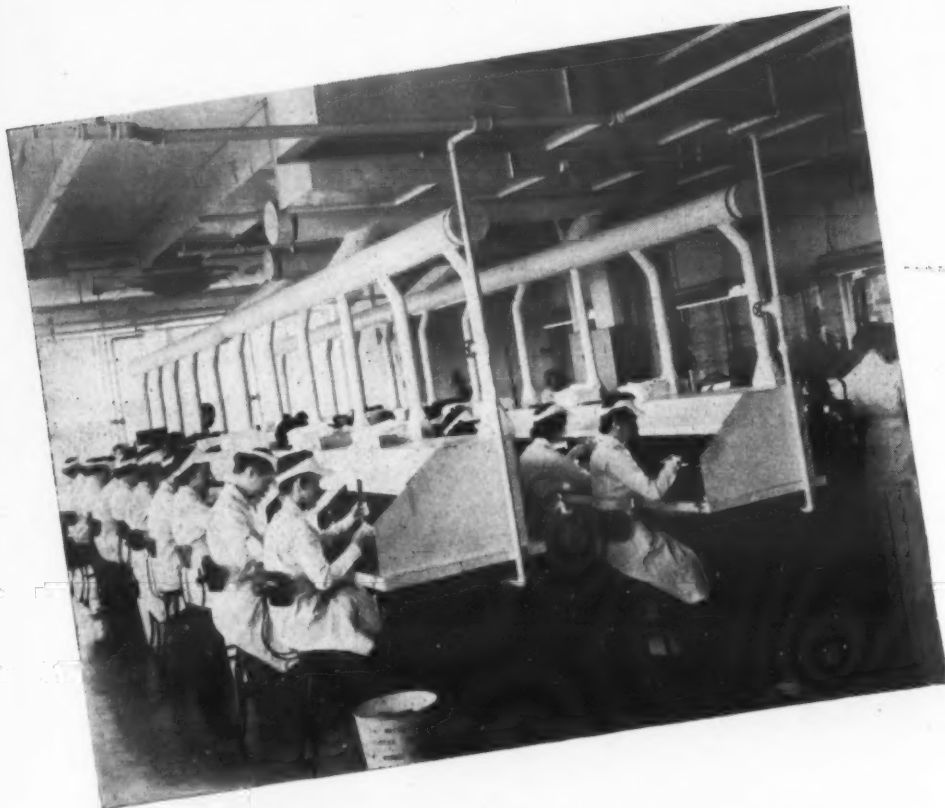
Frequent change of filters in the air conditioning system insure control over dust and lint.



Chemically treated surgical forceps hold this gunsight while an air suction hose with a lint-proof paper tip removes invisible dust specks, as this girl, one of hundreds, works in an air conditioned room.



Once these master control dials are set, temperature, humidity, and air cleaning are maintained.



Although air in the assembly room has been washed, filtered, and dried, minute particles of dust squeeze through the system and must be trapped before they find a resting place on a gunsight. Booths are especially designed so that air from the general area is refiltered through spun glass and blown across working space.



The rough glass wafers that will become lenses first are graded by size and mounted on grinding wheels. From here they go to the optical shop. Air conditioning plays a major role in the production of these all-important items for the country's fighting forces.

Need For Air Control Found In Nearly All Divisions of Plant Making Gunsight Parts

Minneapolis-Honeywell Puts Old Skills To Use In a New Job

MINNEAPOLIS — An automatic temperature control system developed by engineers of a midwestern war plant is speeding the production of lenses and prisms for gunsights and other fire control instruments and helping the manufacturer to meet or beat all contract schedules.

Little known outside of ordnance circles, this unique system has been studied by Army officials and some of its features already have been made available to other companies in the field.

By accurately controlling temperature, dust and humidity in the lens grinding, polishing and assembly areas, the system guarantees perfect handling conditions at all times and permits a uniformity of manufacture not available in uncontrolled areas.

Developed by the Minneapolis-Honeywell Regulator Co. shortly after it undertook to make optical elements to supply its expanding production of fire control devices, the hookup of automatic instruments is coupled with standard air conditioning units. Without previous experience with glass, and with no skilled optical workmen, the company, starting from scratch, devised many short-cuts which have enabled it to become one of the country's leading fire control makers in less than two years' time.

Air Moves in One Direction

In order to speed the grinding and polishing of lenses and prisms, a complete optical shop, sub-divided into nine separate rooms, was set up in the company's main plant. By using standard air conditioning controls developed and made by the company as part of its peace-time operations, the air pressure in each of the grinding rooms is maintained at different levels so that the movement of air is from the room where finest polishing is done towards the rough grinding areas.

Although pressure differences between the various rooms are slight, they are sufficient to maintain a constant movement of air in the direction desired. This air flow prevents the coarser abrasives used in rough grinding from following the lens through the shop and thus guards against the possibility of grit marring or scratching lens surfaces in the areas where fine polishing rouges are used.

Importance of this procedure can be seen when it is realized that an almost invisible scratch will reject a completed lens costing upwards of 10 or 20 dollars, depending upon size, power and other characteristics.

Because a speck of dust 1/10,000th of an inch in diameter would look like a bomber in a gunsight, lenses, prisms and reticles, or cross hairs, must be spotlessly clean before they are mounted in the gunsight casing, which also must be grease and dust-free.

In order to clean glass to the per-

fection required, Minneapolis-Honeywell engineers devised a humidity control system which automatically maintains atmospheric conditions at the most favorable level. Before this system was developed, it had been noticed that on rainy days lenses and other optics were difficult, if not impossible, to clean while on clear days the cleaning job was comparatively easy. This led to the realization that glass is hygroscopic which means that it has the ability to absorb or release moisture.

Overcoming Humidity

When humidity is falling, infinitesimal amounts of moisture within glass come to the surface bringing with them particles of soluble salts making the surface tacky and thus difficult to clean. On the other hand, when humidity is constant or rising, moisture within glass stays there. Having established the cause, it was comparatively easy for the Minneapolis-Honeywell optical staff to overcome the cleaning problems as related to humidity.

At first it was felt that the relative humidity in the cleaning rooms should be permitted to rise gradually throughout the day, and so every night when the areas were unoccupied the humidity was brought down to 20%. During the day, while work was in progress, the humidity was permitted to rise to about 50%. After further experimentation, however, it was learned that a constant humidity served equally as well and today the company's glass cleaning rooms are maintained in the vicinity of 32% depending upon the season of the year.

Because a drop of one degree from the pre-selected humidity level would immediately slow up production it was found necessary to maintain a constant, accurate and automatic check on the air conditioners providing the humidity in the cleaning rooms.

Use of Recorders

This was accomplished by means of automatic recording instruments made by the company's Brown Instrument Division. These devices chart humidity and temperature levels at all times and, when coupled with thermostats and other controls, adjust the air conditioners to compensate for variations in the weather. Once these instruments are set to provide humidity and temperatures desired, no further adjustments are necessary throughout the year.

Dust control is accomplished by filters in the air conditioning units and by a unique system of dust-free booths over work benches. These booths are equipped with special fibre glass filters and air, taken from the room itself, is re-filtered and blown across the working areas. Other dust control measures include

glass-topped benches and the requirement that all employees in the area wear the specially laundered, dust and lint-free clothing provided for them.

All of these precautions in the grinding, polishing and assembly areas, have helped Minneapolis-Honeywell cut rejection rates to a level considered exceptionally low in the complicated fire control field and have at the same time stepped up output to a point well above the production schedules originally called for by Army and Navy ordnance officials.

Craig Directs Philco Radio Engineering

PHILADELPHIA — Palmer M. Craig, for the past two years chief engineer in charge of radar and radio communications equipment development, has been named chief engineer of the Radio division of Philco Corp.

Mr. Craig brings to his new post a wealth of experience in radio research and engineering. In 1933 he joined the Philco Research Laboratories as a radio engineer and assisted in the development of such important contributions to radio as high fidelity reception, automobile radios and the first remote control radio receiving sets.

York Co. Employees Use 'Extra Skills' as Mobile Labor Force

YORK, Pa.—Hundreds of skilled industrial workers at the plants of the York Corp., are proving their ability to become "Jacks-of-all-trades," . . . and masters of them, too . . . to help smash the nation's labor shortage bottleneck, according to S. E. Lauer, president.

A hidden reservoir of skilled labor, equal to thousands of man-hours in 30 different factory jobs has been uncovered and put into action, it is reported, by making use of the secondary occupations of the York workers. This ability to work at other skills was discovered for the first time in a private manpower survey conducted among the company's wage and salary groups.

Under the new manpower plan, the York Corp.'s industrial workers have become a "mobile fighting force" parts of which can be shifted swiftly from one skilled operation to another to meet urgent production demands as they arise. Within a few hours' notice, men working at such varied jobs as truck driving, welding, and painting may become machine tool operators, assemblers and testers for as long as needed.

By filling jobs in work-loaded departments with men from sections of the plant where there may be a temporary lull, outside hiring by York in labor-short Pennsylvania

areas has been cut to a minimum, Mr. Lauer said. To make use of this hidden manpower, he added, York has transferred as high as 10% of the entire factory personnel in a single month. Actually, more men are being transferred than are being hired, it was pointed out.

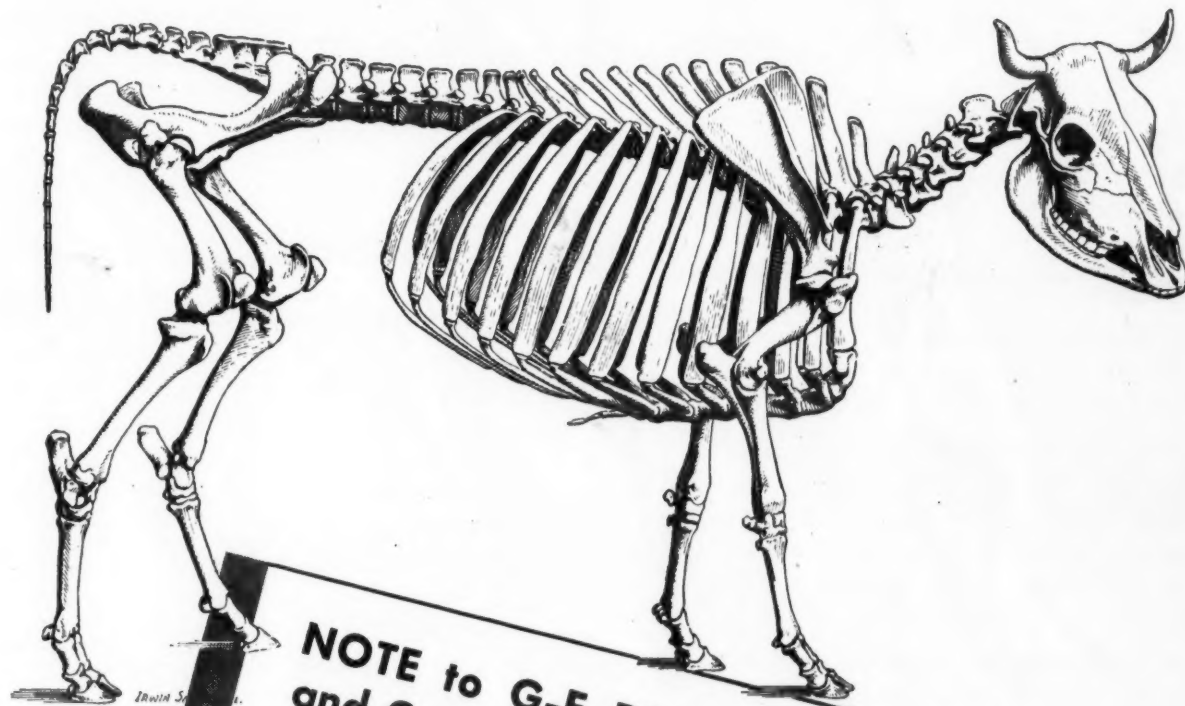
Many average industrial workers polled in the manpower survey were found to qualify in as many as four or five highly skilled war jobs. All of the factory men, however, showed experience and training in at least one or more skills other than the one to which they were assigned. Of the salaried workers, 70% were eligible for transfer to one or more of 20 different factory jobs.

In the executive group the survey uncovered men who had previous experience in such occupations as assemblers, machine operators, welders and eight other industrial skills.

It was explained that most transfers within the corporation's plants are temporary although in many cases they become permanent and actually amount to promotions for the men. All new employees now list their secondary skills as they join the company although with one exception no office or executive employees have been shifted to industrial jobs. The single exception is in the company's salesman group, several of whom have been called in from outlying branches to take on expediting work.

As a typical example of how the York system operates, Mr. Lauer pointed to a recent urgent war order in which 79 additional skilled workmen were needed immediately. Of this number, only 29 had to be hired from the outside and all of these were apprentices or helpers.

THE SKELETON OF A GREAT IDEA



NOTE to G-E Distributors and Contractors: Here is the latest advertisement in the G-E campaign which is seeking out additional prospects for you. Appearing in Time, Newsweek, Business Week and 20 industrial publications, this advertising is aimed to help you in your important wartime job of supplying the nation's industries with air conditioning and industrial refrigeration in all its varied applications.

Only 47% of a steer is edible meat. The rest is bones, gristle and other inedible materials.

In the past, meat has been brought to market in carcass form. Countless tons of inedible bones and surplus fat have been transported countless miles...by railroad, ships and trucks. An enormous waste of energy and shipping space!

Today, to save precious shipping space, meat is being shipped to our armed forces abroad de-boned and

de-fatted. The skeletons of the steers are being left home.

The U-boats made this change necessary. Modern, high-efficiency refrigeration made it possible.

Steaks and other de-boned cuts of meat are now pressed into compact blocks and refrigerated at low temperatures. Dependable refrigeration equipment has been provided by General Electric for this purpose.

To meet unusual war needs, enormous strides have been made in the

development of General Electric industrial refrigeration and air conditioning.

Equipment is more efficient, more compact, more flexible. When the war ends, these improvements will be applied to peacetime uses and made available to all.

★ BUY WAR BONDS ★

General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 438, Bloomfield, New Jersey.

BIGGER PROFITS ARE YOURS



WITH THIS
SUPERB PRODUCE CASE
LIMITED NUMBER AVAILABLE

WITHOUT PRIORITY

For Immediate Shipment
VEGETAIRE—The finest case that money will buy. Write for complete franchise details.

Sherer
SHERER-GILLETT CO., MARSHALL, MICHIGAN

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Refrigeration For the Army

WITH pride the NEWS begins publication this week of a new series of technical articles on "Army Refrigeration Problems." As told elsewhere, the War Department has ordered subscriptions to AIR CONDITIONING & REFRIGERATION NEWS for its Post Engineers all over the world, and we have contacted these men to find out what it is they need to know.

The result will be a series which should be an education to every engineer in the business, because Army refrigeration installations involve whole new sets of problems, and often new types of equipment.

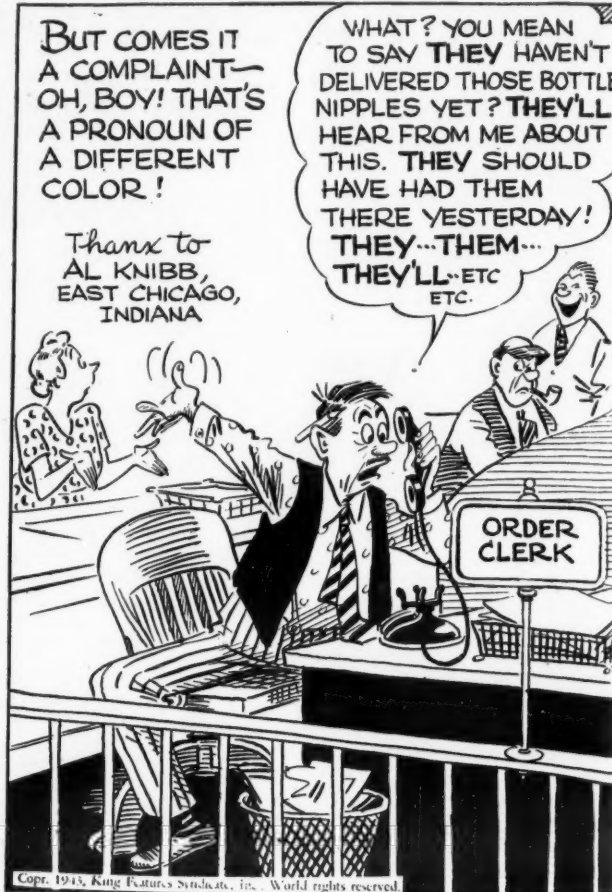
It should be noted that Army refrigeration installations involve nearly every use and application in the realm. Food preservation, of course, is a primary use. But that's only part. Some of these new soldier-subscribers are operating huge air conditioning installations for aviation materiel tests, some are storing everything from serums to parachutes, some are at work on secret applications.

For more than a year the NEWS has largely been occupied with digging out the technical information needed on new war-born applications, such as rivet cooling, cutting oil cooling, refrigerated welding, quenching baths, etc., etc. These have been largely home-front factory applications. Now they are becoming advanced-base applications, too.

Aircraft parts made under rigid temperature and humidity control must be repaired under the same refrigerated conditions. At U. S. bases overseas new parts for guns and planes and tanks are fabricated to replace those worn out or shot up, and here dozens of different refrigeration and air conditioning systems must be installed and maintained to make such fabrication possible.

These advanced-base installations are running into new and different

They'll Do
It Every
Time
By
Jimmy
Hatlo



problems all the time, problems which those of us at home must help solve.

The same situation holds true at naval bases, because the Navy perhaps makes even greater use, proportionately, of refrigeration.

It's a whole new world technically to the refrigeration industry, and a world with which the stay-at-home engineers must become acquainted as well as the engineers in uniform. It is our purpose to provide the information needed, and toward that end we shall draw on the resources of the entire industry.

CMP Evolution & Inventories

DESPITE all the dire predictions that CMP (the War Production Board's Controlled Materials Plan) would go the way of PRP and all its ill-fated predecessors, it now seems to be operating smoothly and definitely is here to stay.

Much credit should go to Charles E. Wilson, who actually runs the War Production Board, for making CMP work. Harold Boeschstein, CMP chief, may deserve even more credit for his studies and labors.

What it does is control the movement of steel, copper, and aluminum smoothly from ladle to assembly line. And the evenness of this flow should reassure those manufacturers who are worried about their inventories in regard to contract cancellations.

Those who have cost-plus contracts and heavy inventories of the principal critical metals have less and less to worry about as CMP gradually works all stockpiles into the moving stream. It is expected that the procedure for the sale of such inventories will be made relatively simple.

Of course these planned "easy transactions" won't be so easy for those who haven't played the game with regard to inventory limitations. And if the regulations haven't been lived up to, they'll show up whenever a contract is cancelled.

It is expected that split ratings will be abandoned in the course of time, that advance quarter allotments will be maintained, and that special allotment accounts will be established for producers of Class A parts. Thus, while requirements will be parcelled out

"vertically," allotments can be made on a "horizontal" basis.

Some who are close to the picture believe that the list of "B" products will be gradually eliminated, or at least reduced drastically in number. Those former "B" products would then move into the "A" stream.

All in all a marvelous job is being done of rationalizing materials control. It still is a frightful headache to those who must do the paper work for manufacturers, but, and this is the important thing, it works.

LETTERS

HOW P-126 APPLIES TO COUNTER FREEZERS, TOOLS

R. S. Scott & Sons
311 W. Main Street
Frankfort, Kentucky

Editor:

Will appreciate it if you can give me any help on preference order P-126 as amended. I am unable to determine if I can apply a rating on parts for counter ice cream freezers and ice cream cabinets, and condensing units for same. Also on tools for servicing commercial equipment. Your opinion will be appreciated.

Charles A. Tracy

Answer: In reply to your inquiry as to applying ratings to ice cream cabinets under P-126, you are permitted under Class III of paragraph (b) "Assignment of Ratings" of Order P-126 to assign at least a AA-4 rating to such repairs.

A recent interpretation of the order also permits you to assign such a rating for tools, provided that they are used in emergency service work on commercial refrigeration equipment.

CALL FOR HELP

Paynes For Music, Inc.
Cof. Main & Washington Sts.
Greenville, S. C.

Editor:

Hundreds of people have no means of refrigeration and it is apparent that there is no possibility of securing refrigerators. Schools, boarding houses, and private homes are desperate for some means of food preservation.

Is it possible under any circumstances to prevail upon WPB to levitate this tension to some extent. The same appeal applies to home laundry equipment. Would appreciate your reaction to these perplexing problems.

Payne for Music, Inc.

ADVANCE PRIORITY DATA

Consolidated Conditioning Corp.
Mt. Vernon, N. Y.

Editor:

We have always enjoyed REFRIGERATION NEWS and find it extremely helpful in these trying days. Much of our advance priority information has come from the NEWS and we honestly feel it is well worth the subscription price. Keep up the good work, and best of luck.

Irwin Huebsch, Jr.

MEYER SUGGESTS DEALER EXCHANGE

The Downs-Smith Company
433 Main Street
Stamford, Connecticut

Editor:

I was most interested in reading your open letter to Chester Davis. The thought occurred to me that the shortage of equipment might be alleviated by an appeal to dealers in refrigeration.

Many of us have used and new commercial equipment in stock for which we may never have a call. Another dealer may have what we need. Personally I would be willing to sell or exchange what we do not need or place it with a local clearing house for this area.

Maybe some larger jobber in each area could be designated as a clearing house and could send out weekly lists of material on hand. I know plans of this nature have been tried by independent suppliers but if it were put on a national basis with each area clearing agent also working through a single central agency a lot of needed equipment would immediately become available.

Malcolm Meyer, President

WELCOME TO RAAF FLYING OFFICER FRANK SLESSARI

F. C. Lovelock Pty., Ltd.
16-20 Young St.
Sydney, Australia

Editor:

I wrote you on the 18th. Since then I have discovered that a very good pal of mine—you have met him—Frank Slessar of Melbourne is going over your way and will probably be remaining in the States for 12 or 18 months.

You may recall meeting Frank when you were in Melbourne. He was manager of R. Werner & Co. until he joined up. He is now Flying Officer F. R. Slessar of the Royal Australian Air Force.

I think Frank will be based at Washington, but in the course of his duties, he will be making trips to various parts of the United States, and I can assure you that if one of those parts happens to be Detroit, he will not leave your city without contacting you.

As present indications are that he is likely to be there 12 or 18 months, this might be a good omen and it may mean that your blokes and our blokes will be paying a return Pearl Harbor visit to Tokyo within the next 12 months—here's hoping!

Frank Hansen, General Manager

FREEZER CABINET CHANGES

Air Conditioning Co.
3215 McKinney Ave.
Houston, Tex.

We read with interest in the June 21 issue of AIR CONDITIONING & REFRIGERATION NEWS about the conference held at Itaca on the subject of Home Freezer Cabinets.

The writer has from time to time written down suggestions in regard to improvement and design with the idea of advising factories about these improvements for postwar production.

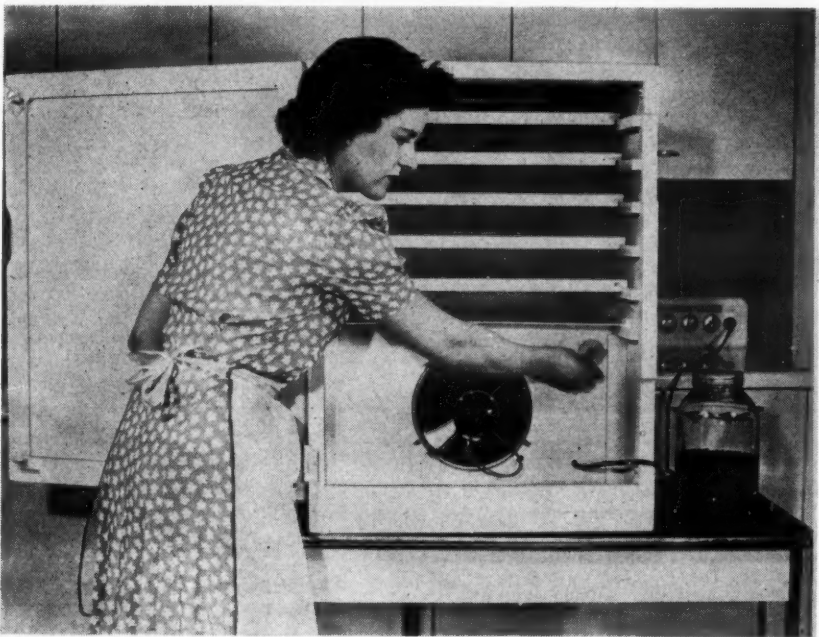
On reading the article I was very interested to see that practically all of the notes that I had made for improvements were covered by suggestions made by people at your conference.

JAMES A. WALSH, President

G-E Home Food Dehydrator Has Thermostatic Heat Control



One of the new home dehydrators being built with materials released by WPB, upon recommendations of the Department of Agriculture. This General Electric model, expected to sell at a retail price of \$39.95, will dehydrate two-thirds of a bushel of beets, or a bushel of spinach at one time. It may be placed on the floor or on the kitchen table. A nichrome wire heating element with thermostat provides heat control, and a fan gives the essential air circulation.



Barbara Anderson, G-E war worker, is shown adjusting the temperature of the home dehydrator recently announced by General Electric. Note how it is placed on a table.

BRIDGEPORT, Conn. — General Electric Co. will manufacture 18,000 of the 100,000 domestic food dehydrators for which materials were released by the War Production Board, according to H. L. Andrews, vice president in charge of G-E's Appliance and Merchandise Dept.

Production will be under way by the end of this month in the company's Traffic Appliance Division at Bridgeport. Specifications authorized by WPB were worked out by Dr. Donald K. Tressler, in charge of food research for G-E's Consumer Institute, formerly chief chemist of the Birdseye frozen food laboratories.

Requirements essential to an efficient food dehydrator, Dr. Tressler stated, are thermostatic control of the heat generated, and proper circulation of air. The structure of the cabinet and the placement of the simple machinery required must realize these two factors.

The G-E dehydrator has Masonite pressed wood sides built around a solid wooden frame. The heating element is nichrome wire, thermostatically controlled, and air circulation is provided by a heat-resistant fan. Expected retail price is \$39.95.

The dehydrator will handle two-thirds of a bushel of fruit or root vegetables, or one bushel of greens. Since dehydrated food shrinks almost 90%, the storage problem is simplified. Full instructions are supplied, including the list of dehydratable foods, preparation required, operation of the dehydrator, storage, and steps for refreshing.

No sugar, pressure cookers, or vacuum-sealed jars are necessary in the process, Mr. Andrews emphasized. Moisture-proof paper containers within covered cans are adequate in storing dehydrated foods, and box companies already are making special moisture-proof boxes for victory gardeners.

Electromaster Dehydrator Designed To Fit In With Other Kitchen Appliances

DETROIT—A new dehydrator that will sell in the price range from \$30 to \$40 has been developed by Electromaster, Inc., here.

Resembling in appearance a small range, the body of the dehydrator will be made of plywood or some other type of wood and the exterior will be enameled, thus giving it the same appearance as enameled metal kitchen pieces. While the dehydrator will be stove height, it will probably be from 20 to 25 inches wide.

Among the design features are removable and adjustable trays, five 200-watt bulbs, and a slow-moving electric fan to provide proper air circulation.

Electromaster officials declare that while most of the company's per-

sonnel and facilities are now devoted to war work, the production of the dehydrators can be accomplished without in any way affecting the output of government orders.

Cox Heads Goodrich Molded Goods Sales

AKRON, Ohio.—R. G. Cox, who has been with the industrial products organization of The B. F. Goodrich Co. for the last 18 years, is now in charge of molded goods sales, it is announced by W. S. Richardson, general manager of the Industrial Products sales division. Cox succeeds E. R. Miller, recently retired.

Man Who Made Dehydrator For V-P Henry Wallace Gets WPB Authorization To Produce Home Unit

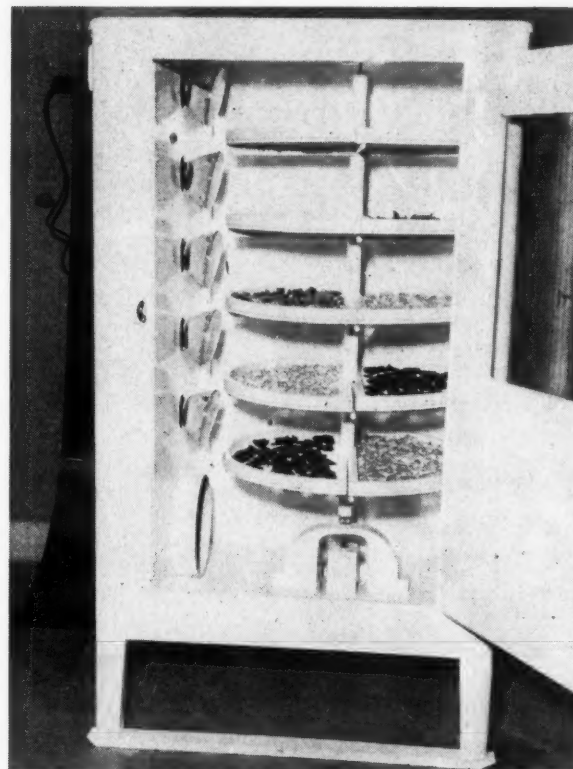
First Model Produced Sent To Wallace's Apartment

KANSAS CITY, Mo.—A dehydrator, the size of an ordinary icebox, was delivered to Vice President Wallace's Washington apartment recently. The dehydrator was the gift of a Kansas City inventor and manufacturer, A. J. Stephens.

Stephens read in a newspaper that Henry A. Wallace said he was in need of a small food dehydrator that would reduce his garden yield to an eighth its bulk for storage in his apartment pantry. He got full details on dehydration from the Rural Electrification administration and the Department of Agriculture, and made the vice president's dehydrator according to their requirements and recommendations. He then went back to first principles, as the farm wife spreads sliced apples, peaches and apricots on a shed roof to dry under sun and wind.

He began to make up drawings and miniature models in pasteboard. The final model which was delivered to the Vice President has rotating shelves with electric rays applied on one side of each turning shelf. One motor operates the central shaft, another an air circulating fan. Dehydration is complete in from eight to nine hours.

When tested, the vice president's dehydrator reduced 16 pounds of spinach, carrots, rhubarb, celery, apples, turnips and beets to four



Rotating shelves are one of the main features of the dehydrator which was built by A. J. Stephens of Kansas City, Mo. when he heard that Vice President Wallace wanted one. Mr. Stephens' company will not make a similar model for public use.

pounds. Ninety percent of the moisture was removed.

In the recent WPB Limitation Order L-308 setting up production schedules for domestic food dehydrators, the A. J. Stephens Co. of Kansas City is listed as having been

given an approved quota of 500 food dehydrators.

A complete list of producers of home dehydrators who have been given a production quota by WPB, was published in the July 26 issue of the NEWS.

There's No Escape!



Copyright 1943—Philco Corporation

RADAR, the fabulous radio device that "sees through" fog, clouds and darkness, that searches out enemy targets and warns against the approach of hostile forces, has given us a thrilling story of American ingenuity. Long before Hitler screamed his ominous threats of secret weapons, the scientific branches of our Army, Navy and government were quietly developing this miracle of radio.

The time came when the radio industry of America was called upon to produce Radar quickly and in decisive quantities to turn the tide of Axis conquest. That's

This is another of the series of cartoon advertisements appearing in the national magazines depicting the might of industrial America. It tells the story of Philco at war and the peacetime promise of Philco war research and production for the homes and industries of America.

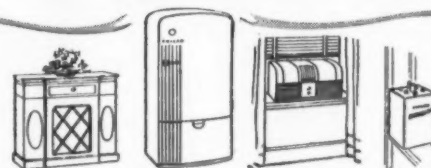
when Philco, with the facilities of the world's largest radio manufacturer and with vast research experience in the field of ultra-high frequency radio waves, was able to render its vital service to the might of our fighting forces.

Today, Radar is one of Philco's most important war production activities. Tomorrow, the advance of science in the Philco laboratories will appear as peacetime miracles of radio, television, refrigeration, air conditioning and electronics for the homes and industries of America—under the famous Philco name.

PHILCO CORPORATION

BUY WAR BONDS AND STAMPS

Hasten Victory... Build for tomorrow... Invest a part of your income in War Bonds.



PHILCO—the Quality Name in Millions of American Homes.

LISTEN TO "OUR SECRET WEAPON"

Hear Rex Stout expose Axis lies and propaganda. Every Friday evening, CBS stations.



Refrigeration Aids The Aircraft Engineer

How and Why Some Aluminum Alloy Parts are Refrigerated

Editor's Note: This article "Refrigeration Aids the Aircraft Engineer," was prepared especially for AIR CONDITIONING & REFRIGERATION NEWS by the research engineering staff of the Aluminum Co. of America. It presents the views and data of the producer of the alloys so widely used in aircraft work, on the use of refrigeration to retard the aging process and preserve the workability of the metal.

The men who prepared the article wish to give credit to "Metals and Alloys" for the use of data published in that publication, which has been incorporated into this article.

Refrigeration of aluminum alloy rivets and other parts is today speeding war production in aircraft factories. Chilling the parts immediately after heat treatment and quenching and then maintaining them at a low temperature retards age hardening and preserves maximum workability right up to their time of use.

Experiments carried out more than 12 years ago at the Aluminum Research Laboratories, New Kensington, Pa., established the fact that age hardening of aluminum could be temporarily retarded by subjecting

the metal parts to sub-freezing temperatures. As early as 1931, the Boeing Aircraft Corp. demonstrated in their Seattle plant the effectiveness of dry ice as a means of retarding the aging of aluminum alloy rivets.

Prior to the use of refrigeration, handling of rivets was largely a race against time, in which the riveter strove to drive as many rivets out of a batch as possible before they became too hard to use. High strength alloy rivets, immediately after quenching, have the work-

ability of annealed aluminum; and it is at this stage that they can be handled with best results.

However, age hardening begins within a very few minutes after quenching, and at ordinary temperatures, these rivets may become so hard within 30 minutes that they may crack when they are driven.

Early riveters required constant supplies of fresh rivets, and all rivets held longer than 15 minutes were returned to the furnace for reheat treating. This meant a serious waste of time, especially where the riveter was working at a remote point in the plant.

Early in their work with refrigeration, the Boeing Aircraft Co. rejected ice water in favor of dry ice. Dry ice has the important advantage of occupying a small space. Also it is portable and can be adapted to almost any type of container.

Development of the Idea

Boeing constructed special rivet boxes made of plywood, and heavy layers of balsa wood for insulation. Each box was divided into compartments with screen trays holding the rivets and a small screen section for the dry ice.

To prevent the temperature from dropping to a point lower than necessary, the ice was wrapped in paper. Free air circulating within the box permitted an average temperature of approximately 30° F.

The Boeing system worked very well. Each morning the heat treatment department prepared a sufficient number of rivets to supply all needs for the day. These were quenched, chilled, and distributed in the dry ice boxes to the various de-

partments where they were held until used.

Mechanical Unit Advantages

Within recent years great strides have been made in the field of mechanical refrigeration and individual mechanical units have been developed to handle work of this nature in aircraft factories. As compared with dry ice units, these mechanical refrigerators offer the advantages of providing greater storage space and permitting a more exact control over temperatures. Although dry ice still is extensively employed, more and more mechanical units have found their way into this type of service.

Aluminum alloys most commonly used for aircraft rivets are A17S, 17S and 24S. Approximately half of all aluminum aircraft rivets are formed of A17S (Cu 2.5%, Mg 0.3%, balance aluminum). Where higher strength is required, rivets made of 17S alloy (Cu 4.0%, Mn 0.5%, Mg 0.5%, balance aluminum) are used. Many rivets are also made of the very high strength aluminum alloy 24S (Cu 4.5%, Mg 1.5%, Mn 0.6%, balance aluminum).

Alloys formed of A17S-T (fully heat treated and aged) are sufficiently workable that they can be driven easily without danger of cracking, and refrigeration of rivets made of this alloy is not usually necessary. Most of these rivets are heat treated and aged by their manufacturer and can be driven as received.

However, rivets formed of 17S-T and 24S-T alloys age harden very rapidly and it is necessary to hold their "as quenched" condition by refrigeration in order to avoid normal aging and to maintain maximum workability.

In present large scale production, rivets are heat treated and quenched in large numbers at a central location and distributed throughout the plant in a refrigerated state for subsequent use. Often the rivets are cooled rapidly in refrigerated quenching water after which they are immersed in refrigerated alcohol. The alcohol bath prevents the rivets

from sticking together and making them difficult to handle.

How It Is Used for Sheets

Not only rivets but other aluminum parts as well are being refrigerated today in order to permit easier fabrication. Forming operations so severe that they would break a section of age-hardened aluminum sheet are carried out with ease on "as quenched" material that has been refrigerated. In some cases it is desirable to partially pre-form aluminum aircraft sections before heat treatment, and here refrigeration is employed to hold the section after heating and quenching at a workable stage until final fabrication.

The effects of refrigeration in retarding the natural aging of aluminum alloys 17S and 24S are illustrated in the accompanying charts. The behavior of both of these alloys is similar in many respects. At room temperature aging starts almost immediately after quenching, proceeds very rapidly for the first 10 hours, then tapers off to completion in about three days.

What the Tests Revealed

Where a temperature of 32° F. is achieved directly after quenching, aging is retarded for at least 16 hours, after which aging proceeds very slowly, requiring approximately two weeks for final completion. Where aluminum alloys are refrigerated immediately to 0° F., after quenching, there is no apparent aging for at least a week. In test cases permit a retarding temperature of -108° F., aging has been retarded almost indefinitely.

The mechanical properties of the alloy 24S are higher than those of 17S, and the workability of 24S is somewhat less. It follows that refrigeration is even more necessary in the case of aluminum alloy rivets and other parts formed of 24S than in the case of 17S.

Once age hardening has started, no amount of further refrigeration will restore the original "as" (Concluded on Page 15, Column 1)

How many days to postwar production?



If you're making your plans now—
CALL IN SERVEL

Nobody knows for sure how soon the war will end. But forward-looking business men are taking steps today so they'll be ready when that time comes—with new ideas, new products. And they're calling on Servel for cooperation.

Servel's 20 years' experience—plus advanced engineering and technical knowledge—are available to manufacturers in setting up their postwar programs on a sound foundation.

Our research engineers are today developing the

finest line of condensing units we have ever offered. This line will be complete—from ½ HP to 50 HP—tailored for every temperature bracket from air conditioning to quick freezing.

To meet immediate war requirements...

Of course, we are today actively engaged in the manufacture of our current line of condensing units for essential uses, serving the armed forces, industry and civilian needs. We are prepared to make prompt shipment of most popular models at prevailing priority levels.



SERVEL, Inc.

ELECTRIC REFRIGERATION AND
AIR CONDITIONING DIVISION
Evansville, Ind.

FREE to manufacturers

If you plan to manufacture fixtures or any device requiring controlled cooling after the war, be sure to ask for this free booklet, "The Postwar Era." Don't put it off. Write for it today.

Refrigerated Containers -- But Not For Soda Pop



After the quenching treatment the aluminum rivets are placed immediately in portable containers, such as the one shown in this illustration. In the containers the rivets are distributed throughout the plant.

Careful Preservation of a National Asset



At the Douglas Aircraft plant huge refrigerators of special design are employed to keep the heat-treated aluminum rivets cold and in condition for easy driving.

THERE IS NO SUBSTITUTE FOR EXPERIENCE

Rivets & Sheets Both Cooled

(Concluded from Page 14, Column 5)
quenched" workability to the metal. It is extremely essential that refrigeration be applied immediately after quenching and that this refrigeration be held as constant as possible, allowing no opportunity for the aluminum parts to approach room temperature until time of their final application.

Refrigeration in no way affects the ultimate properties of the alloys. Aluminum rivets or other parts which have been refrigerated after quenching and held at low temperatures for long periods of time have resumed natural aging upon being removed from refrigeration. They compare favorably in strength and hardness to aluminum alloy parts that have been allowed to age harden without any intervening refrigerating period.

Real Reason for Doing It

Contrary to popular opinion, aluminum alloy rivets are not refrigerated to help shrink them into the rivet holes. While there is a certain amount of contraction during cooling, the rivets have generally been warmed to a considerable extent before actual application. Sole advantage of refrigeration is in retarding the aging process and preserving workability over a longer period of time.

While aging is effectively retarded at freezing temperatures, in practice it has been found desirable to drop the temperature to a considerably lower point in order to permit a "margin" of coldness as a safeguard against accidental variations in temperature. Some aircraft companies have found that a reduction in temperature to 0° F. is ample for their needs, while in other places, conditions are such that temperatures as low as -30° or -40° F. are desirable.

More Varieties of Fish Are Now Quick-Frozen

SAYVILLE, L. I.—By use of a quick-freeze method, the ordinarily discarded blowfish and sea robin are being prepared to take their place on Mr. and Mrs. America's dinner table by the Blue Point Co., Inc., producers of oysters, company officials report.

Upon discovery that both fish possess a fine taste, the company early in June began freezing one-half ton of each every day, to lay up a stock for sale in September. As the company points out, there is sufficient fresh fish now and that by the end of the fresh season, the blowfish and sea robin supply will be a welcome supplement.

The company, which also operates in East Marion, L. I., believes it is making somewhat of a contribution to the food problem by dressing up these derelict fish for consumption. Even though its chief business is oysters, the new idea is advantageous in that it keeps employees at work in the non-oyster season.

Only parts of the blowfish are prepared for sale. Because of extra handling required, they will probably bring a bigger price than other types of frozen fish.

Local residents say they taste like chicken.

We "BORROWED" THE STEEL FROM THE FAMOUS **MIDWEST** Reach-In CABINET Line TO MAKE **PARACHUTE FLARES** AND OTHER **ARMY-NAVY NEEDS**

Vital **REACH-INS** for the duration. But engineering, design, and research departments are hard at work! Proudly this pennant flies over our big Galesburg plant.

MIDWEST MFG. COMPANY

The First Step -- A Water Bath -- But More Is Needed



A cold water treatment is given aluminum rivets following heat treatment. Often the rivets are cooled rapidly in refrigerated quenching water after which they are immersed in refrigerated alcohol, this being done to prevent the rivets from sticking together and becoming difficult to handle.

Charts Show Aging of Alloys at Various Temperatures

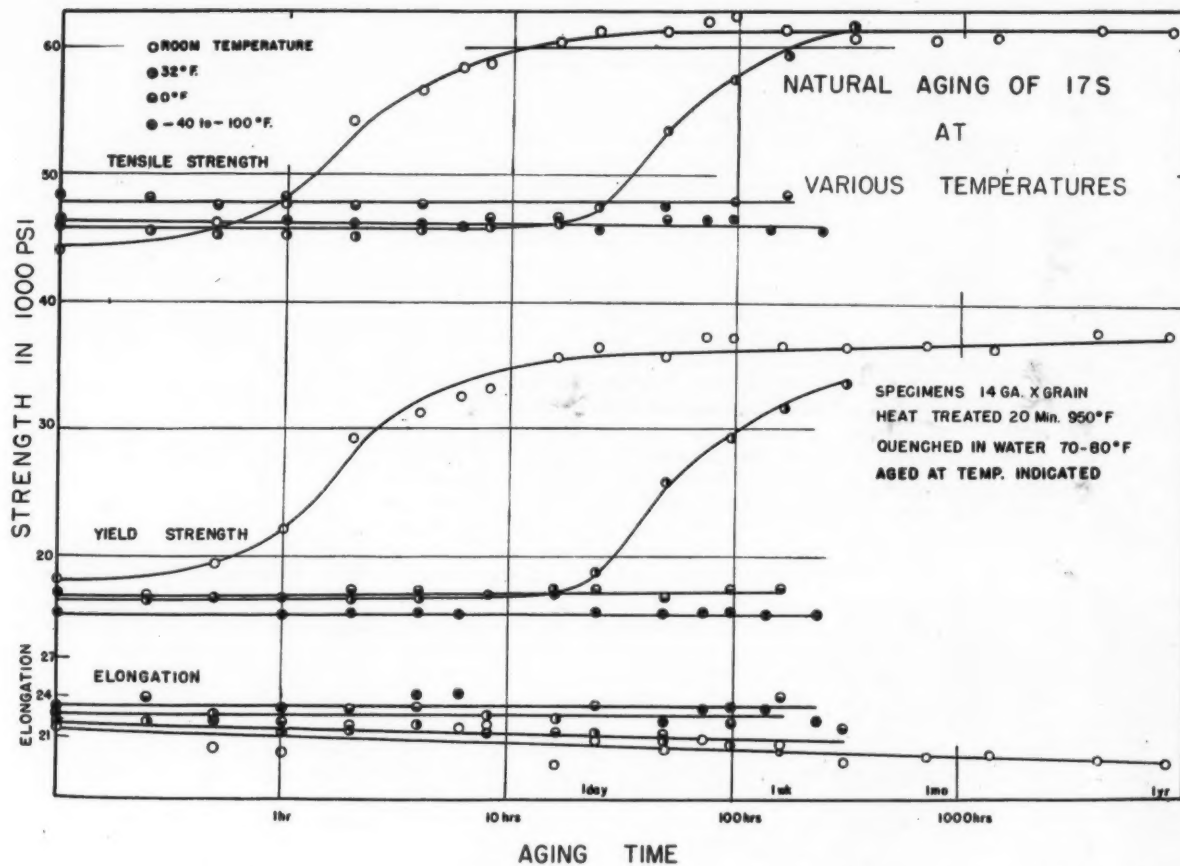


Chart showing natural aging of aluminum alloy 17S at various temperatures. Note the straight line characteristic of the alloy when held at extremely low temperatures (-40 to -100° F.).

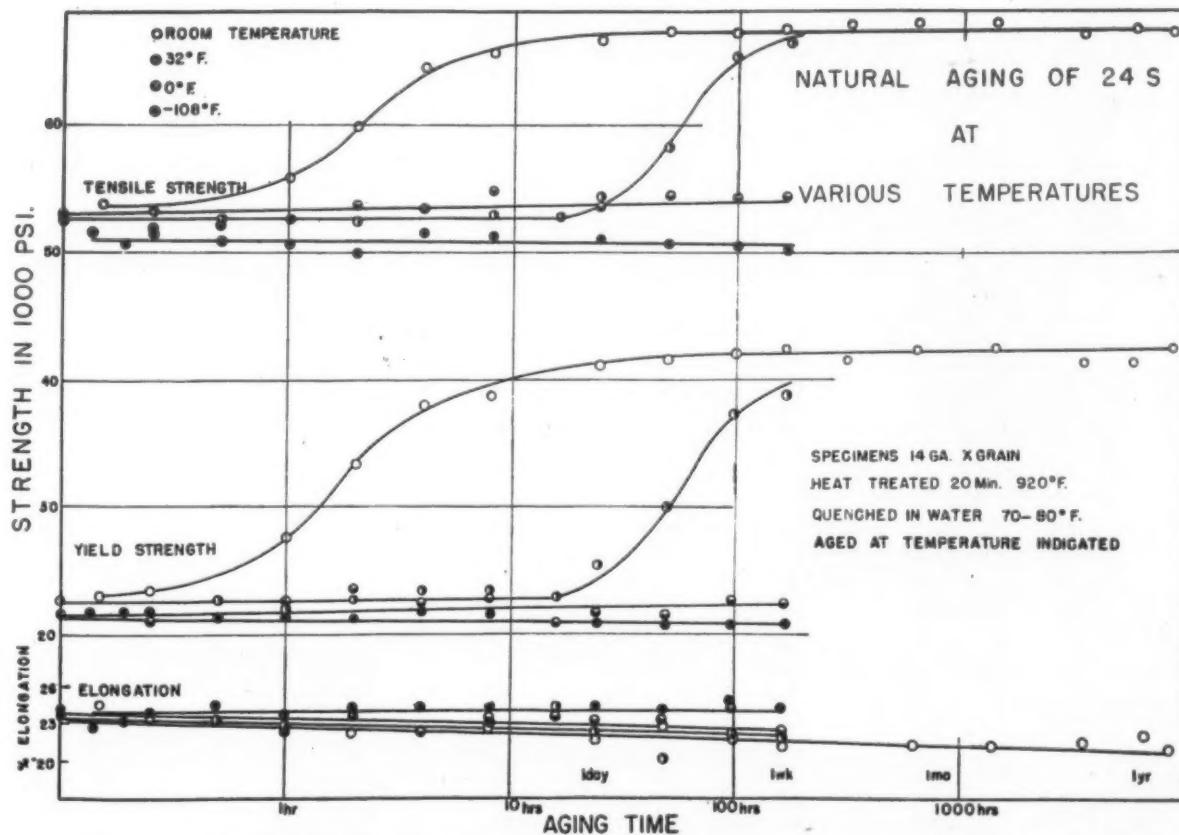


Chart showing natural aging of aluminum alloy 24S at various temperatures. While practice has generally been to use temperatures of about 0° F., some companies have found that they get better results and eliminate any danger of a temperature variation default by going to temperatures of -40° F. or lower.

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Servicing Sealed Units Of Kelvinator Design

Written in collaboration with the service department,
Kelvinator division, Nash-Kelvinator Corp.

Sealed Unit System Service (General)

Kelvinator household refrigeration sealed units have always been "sealed" in every sense of the word. All joints and seams are soldered or welded; there are no joints, threaded connections, valves or plugged openings of any description. Therefore, refrigerant or oil cannot be added; gauges cannot be attached.

Service on this type of system consists of making a few simple checks and tests electrically in connection with the motor, relay, thermostat and wiring. If corrections of a specific complaint cannot be effected by testing all of the electrical parts, there is little else to do but replace the system.

Before making a quick decision to replace the system, however, every possible point of the entire system should be thoroughly checked. Since it is impossible to attach gauges, indications of a refrigerant shortage must be from a visual inspection of the cooling unit and a check on the operating time. A shortage of refrigerant will result in long running time and the frost line on the cooling unit will be low. (A high cut-in point on the temperature control will also cause a low frost line.

It is advisable to check the cut-in and cut-out points of the temperature control by means of a dial thermometer with its bulb clamped beside the temperature control bulb, before deciding on the cause of a low frost line. If the trouble is found to be with the control and if the control is an adjustable type, the complaint can be corrected at once.

If the control is not adjustable, however, a control replacement will be necessary. If the control is found to be operating satisfactorily and the frost line is low, you may assume that the refrigerant charge in the system is low, in which case replacement of the entire system will be necessary.

A very handy instrument to carry when called to service sealed systems is a combination time and temperature recorder (Fig. 2). This will furnish a permanent record of the running time and the temperature maintained during that period. A recorder is simple to use and furnishes the true picture of operating conditions. Figure 3 is a typical chart from a system operating normally. Fig. 4 illustrates a chart from a system on which the relay contacts failed to close.

Fig. 5 shows the method of using the recorder.

Fig. 2 Two-Way Recorder

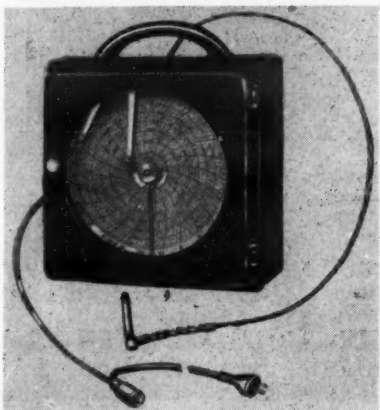


Fig. 2. This handy instrument furnishes a permanent record of both the running time and temperature maintained.

Installing

Before discussing electrical service as it pertains to sealed systems, it will be well to review a few of the details concerning good installation practices.

(a) Remove the crating carefully so that the finish will not be damaged.

(b) Where an air duct or flue is supplied, it must be assembled to the cabinet back on some models; on others it is attached before shipping. This duct is very necessary to the efficient operation of the system

Fig. 3. Chart For Normal System

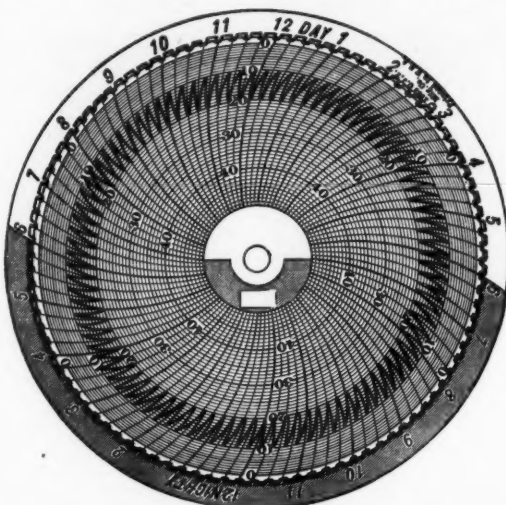


Fig. 3. The even cycles represented by the markings on this chart reveal that the system is functioning properly, and in addition to giving the serviceman a quick check on the situation, is reassuring to the customer.

Fig. 4. Improper Operation Shown

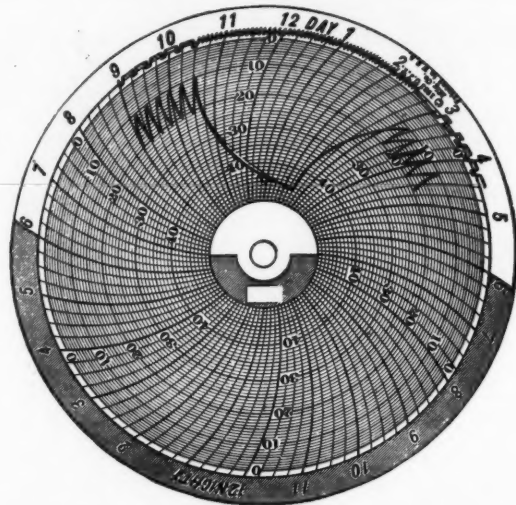


Fig. 4. A chart made by a recorder on a system on which the relay contacts failed to close. After working with these recorders for a while, the serviceman can often make a pretty accurate diagnosis from the reading.

and should be installed properly before placing the cabinet in position.

(c) Observe the usual rules for properly locating the cabinet. Do not install near radiators or other sources of heat. If possible locate the cabinet where it will not be exposed to direct rays of the sun.

(d) Some sealed units are held in place with bolts for purposes of shipping; others are free floating, restricted by lock-nuts at the top of "hold-down" studs. In any event, be certain the unit flats freely on its mounting or suspension springs to eliminate vibration and noise.

(e) Be certain there is ample clearance at the back, top and sides for air circulation. Whether a system relies upon natural convection or forced circulation proper air circulation is very important.

(f) Do not plug the service cord into the wall receptacle or power supply until you are positive that the current characteristics (voltage and cycles) agree with the specified rating shown on the household electric meter or fuse box.

(g) If the unit being installed is equipped with an auxiliary fan for condenser cooling, spin the fan by hand to be sure that it does not strike the condenser or any part of the base or frame.

(h) With the temperature control at the off position, plug in the service cord. Remove all tags or shipping accessories and turn the temperature control to the normal operating position. Explain the operation of the control and discuss any special details about that particular model with the user (how to use the temperature control, removing ice cubes, defrosting, overload protection, cleaning; etc.)

Fig. 5. Method In Which a Recorder Is Used To Check Operation

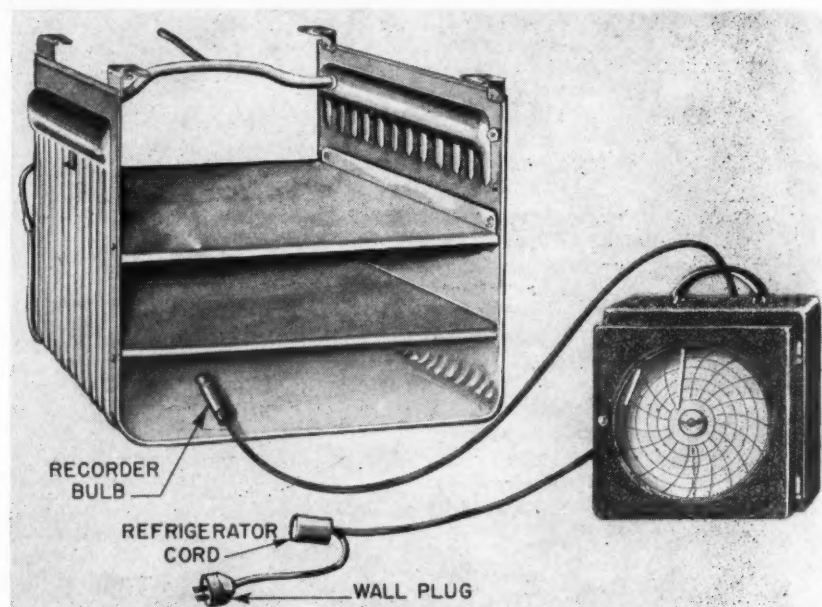


Fig. 5. This shows the simple manner in which the recorder is set up to do a job in a household electric refrigerator.

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Ansul Representative FRANKLIN WEDGE (Paoli, Pa.) is well known for his service to the refrigeration industry throughout the territory shown.

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TWENTY-EIGHT YEARS OF KNOWING HOW

Types of Low Temperature Systems Compared In Chicago ASRE Talk

CHICAGO—More than 65 members and guests attended the summer meeting of American Society of Refrigerating Engineers' Chicago section on July 15 at the Drake hotel.

High point of the evening was Harry Sloan's talk on "Low-Temperature and Multi-Stage Systems," in presenting which he drew widely from his own experience as past president of ASRE and as advisory engineer for Vilter Mfg. Co., Milwaukee.

Mr. Sloan's review went back to the early days of multi-stage compression systems, when -20°F . was considered very low indeed. He touched upon the transitional period that followed.

He illustrated the transitional steps with lantern slides of the differences between simple and multi-stage compressors, pointing out the lower compression ratios possible in the latter, and with slides outlining the differences between ammonia systems, reaching -50°F ., and "Freon-12" systems, reaching -63°F .

He also described the extremely low temperatures reached in cascade systems, hitting sometimes as low as -252°F . but practical only for those low temperatures because of less efficiency in the higher levels, when the ratio of 1 hp. to 1 ton of refrigeration, practical for other systems, here is considerably higher, it was pointed out by the speaker.

For the same reason they put erasers on pencils—

That "RECALIBRATOR" on a Marsh Gauge

MISTAKES will happen. Even a Marsh Gauge or Dial Thermometer can be knocked out of adjustment. But with the "Recalibrator" you have a simple, completely satisfactory way to erase the error.

Don't confuse the "Recalibrator" with ordinary "adjustments". It does exactly what the name implies—recalibrates the instrument throughout its entire range, by re-establishing the proper relation between the bourdon tube and the movement.



Available in all Marsh Gauges, standard in all Marsh Dial Thermometers, the "Recalibrator" is typical of the advanced design and construction Marsh has developed through 75 years of gauge making. With gauges today facing harder and longer service, more and more refrigeration men make it a point to look for the "Recalibrator."

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Philadelphia Group Presents Brief on Service Manpower To State Draft Headquarters

Editor's Note: The following brief was prepared by the Refrigeration Service Managers Division of The Electrical Association of Philadelphia and presented before the Pennsylvania State Selective Service Headquarters. It is an exceptionally good statement of the case, and could be used as a model.

The Refrigeration Service Managers Division of The Electrical Association is recently organized and is exceptionally active. Chairman of the group is L. A. Tucker of J. J. Pocock, Inc.

July 12, 1943

To Major C. M. Hartmen, Occupational Advisor
Headquarters for Selective Service
Harrisburg, Pa.

With the hope that the essentiality of refrigeration servicemen be recognized, the Refrigeration Service Managers Division of The Electrical Association of Philadelphia presents for your consideration the following facts and figures applying to this branch of the industry:

The national war effort is a structure comprised of many factors over and beyond the actual production of airplanes, warships, ordnance and munitions.

Along with these are many others of vital importance, including mining, transportation, agriculture, and many other industries, including electric refrigeration service. The breakdown of any one of these, while it might not cause the collapse of the entire structure, would definitely weaken it.

The Case For Refrigeration

All of us have recently awakened to the seriousness of the nation's food supply with which so much must be accomplished in the coming year, over and beyond the feeding of our own civilian population. It is in this connection that the subject of refrigeration takes a position of prime importance, although the preservation of food is in these times by no means the only important function electric refrigeration is performing.

In the last two decades mechanical refrigeration has become the popularly accepted method in the United States, not only in millions of homes, but in countless commercial and industrial establishments as well.

Electric refrigeration is the method that permits the housewife to keep in edible condition the food upon which the health of her family depends.

It is a method utilized by practically all stores that sell perishable foodstuffs of all kinds.

It is used by commercial food establishments engaged in the vending and processing of foodstuffs.

It preserves food for indefinite periods of time in our warehouses.

Railroad cars, trucks and steamships make use of this modern method of food preservation.

In addition, countless institutions, the Army and Navy, hospitals, dairies, etc., depend upon it.

Aside from this it has other uses of importance, among which are the many refrigerating installations for industrial processing in actual war plants. These functions include aluminum sheet cooling, rivet cooling, spot welder tip cooling, and metal "cold" treatment, etc., etc.

Refrigeration equipment also preserves in hospitals, drug stores, etc., valuable vaccines, anti-toxins, etc., and in these days we can not fail to mention that electric refrigeration is used in the processing and preservation of blood plasma.

Never has there been greater use and more need for electric refrigeration. Never has it been so important that installations be kept functioning without interruption. It is in this situation that the refrigeration service industry finds itself on every hand called upon to do more than ever before in its history and with a greatly depleted number of skilled servicemen.

Factors in Current Situation

In this connection there are a number of factors to consider. Very little new equipment is being made and each year as existing installations grow older, the demand for service logically increases.

The electric refrigeration serviceman is a highly skilled technician, with a general knowledge of numer-

ous trades, including electrician, plumber, carpenter and all-around mechanic, plus the highly specialized knowledge of refrigeration processing, properties, circulation of air, etc. Granting that he originally has the aptitude for the job, it is generally accepted that he requires about two years of experience for domestic service or more for the more intricate and diversified commercial and industrial service.

It is apparent from the foregoing that when a well-trained man is lost to the refrigeration service industry, the industry is faced with an almost impossible job in replacing him.

As was the case with agriculture, refrigeration service also lost many men who were inducted into the armed forces. On top of this, many additional men were lost to what are known as the "essential war industries". In the latter case, perhaps shorter hours, easier work and high pay were motivating factors.

Our servicemen today are working long hours and in emergencies, like the physician, must be on call day and night.

The situation at this moment is acute, but in the next three months demands for service will show a marked increase, for hot weather is when refrigeration equipment and machinery are tried the hardest.

This peak in service calls during the summer months is a decided one, even though for some years the service companies have conducted campaigns to get users to have their equipment inspected and serviced during the winter months so as to relieve the pressure on service departments during the summer months.

Disaster in Inexperience

A poorly trained, inefficient serviceman can not and should not be sent out to work on, and perhaps ruin, expensive equipment owned by a householder or a commercial or industrial establishment, especially now when materials and replacements are practically impossible to obtain.

The industry is doing its best to meet this situation and is endeavoring to schedule work in the ration of its importance; for instance, blood plasma, hospitals, industrial processing, wholesale and retail food storage, dairies, institutions, homes, and other calls if time is found.

This vitally important industry should not be permitted to breakdown for lack of trained manpower. The consequences of such a breakdown would be grave indeed, for it would mean little if our farmers produced a sufficiency of food only to have it wasted through spoilage due to lack of properly functioning refrigeration equipment.



● Idle and surplus inventories of refrigeration parts can now be put to essential use in helping to maintain the nation's huge investment in refrigeration.

We buy outright for cash, usable parts for distribution to over 20,000 refrigeration service-men customers. Let us put your idle inventories to good use—you will then be helping conserve scarce and precious materials.

The Harry Alter Co.

1723 S. Michigan Ave.
Chicago, 16, Illinois

Facts on Service Manpower in Philadelphia

1. Number of men (service or shop) employed in June, 1941 181
2. Number of men (service or shop) employed same period, 1943 103
3. Number of men lost to armed forces and essential war industries .. 78
4. Number of men under 38 years of age 45
5. Number of service calls covered in:
 - a. June 14,168; July 15,912; August 15,507, 1941
 - b. June 13,111; July 13,743; August 13,364, 1942
 - c. June 11,837, 1943
6. Approximate number of the following types of institutions served:
 - a. Army and Navy 170
 - b. Defense plants 202
 - c. Hospitals 118
 - d. Food establishments (vending or processing) 6,425
 - e. All other institutions 2,650
7. Approximate number of domestic refrigerators in Phila. area 500,000
8. Size of territory Approximates 25 miles about city, or area of 1,925 sq. mi.
9. Average mileage per serviceman per month:

Summer 1,800 miles — Winter 1,500 miles.

We respectfully submit the foregoing, together with the following data having to do with the situation in the Philadelphia area:

The data submitted in the table has been collected from seven electric refrigeration service shops representing distributors of well-known makes of electric refrigerators. These shops probably do approximately 75% of refrigerator service work in the Philadelphia territory.

It is of interest to know that these distributing companies have about 875 dealers located in a territory including approximately two-thirds of Pennsylvania, two-thirds of New Jersey, all of Delaware and eastern shore of Maryland.

Due to the manpower situation, plus the fact that there is very little to sell, there has been a considerable mortality among dealers. This has resulted in certain areas, often quite distant from Philadelphia, being without refrigeration service. The larger companies in such cases must assume this responsibility.

These larger service organizations are making and have made every possible effort to educate men in electric refrigeration service work. Through numerous methods, including correspondence, field work, etc., and through The Electrical Association of Philadelphia working in conjunction with the authorities of the School District of Philadelphia, for over a year classes in refrigeration service have been conducted in the Murrell Dobbins Vocational School. In connection with the latter, practically all of the actual equipment utilized for practical work, as well as the instructors, have been made available through the close cooperation of the refrigeration service managers.

The facts and figures presented herewith have been gathered together by the Refrigeration Service Managers Division of The Electrical Association of Philadelphia and every effort has been made to insure their accuracy.

Respectfully submitted,

L. A. Tucker, Chairman,
Sheridan Taylor, Secretary
Refrigeration Service Managers
Division, The Electrical Association of Philadelphia.



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53 Lexington Ave., Brooklyn, N.Y.

G-E Philadelphia Service Center Opens

PHILADELPHIA — The opening of a General Electric Appliance Service Center at 2314 Market Street in Philadelphia has been announced by M. J. Sands, district manager of General Electric Co.'s appliance and merchandise department. The new center will service refrigerators, ranges and other major G-E appliances in the Philadelphia area formerly serviced by the Judson C. Burns distributorship.

The appliance service center, which will employ 35 people, will occupy the entire 42,000 square feet of the four-story building. It will be managed by G. H. Reid, who for many years has been manager of the service department for the Judson C. Burns Co.

Owners of G-E refrigerators and other large household appliances in the Philadelphia area may call the appliance service for repair work, or they may deal with their authorized G-E servicing dealers.

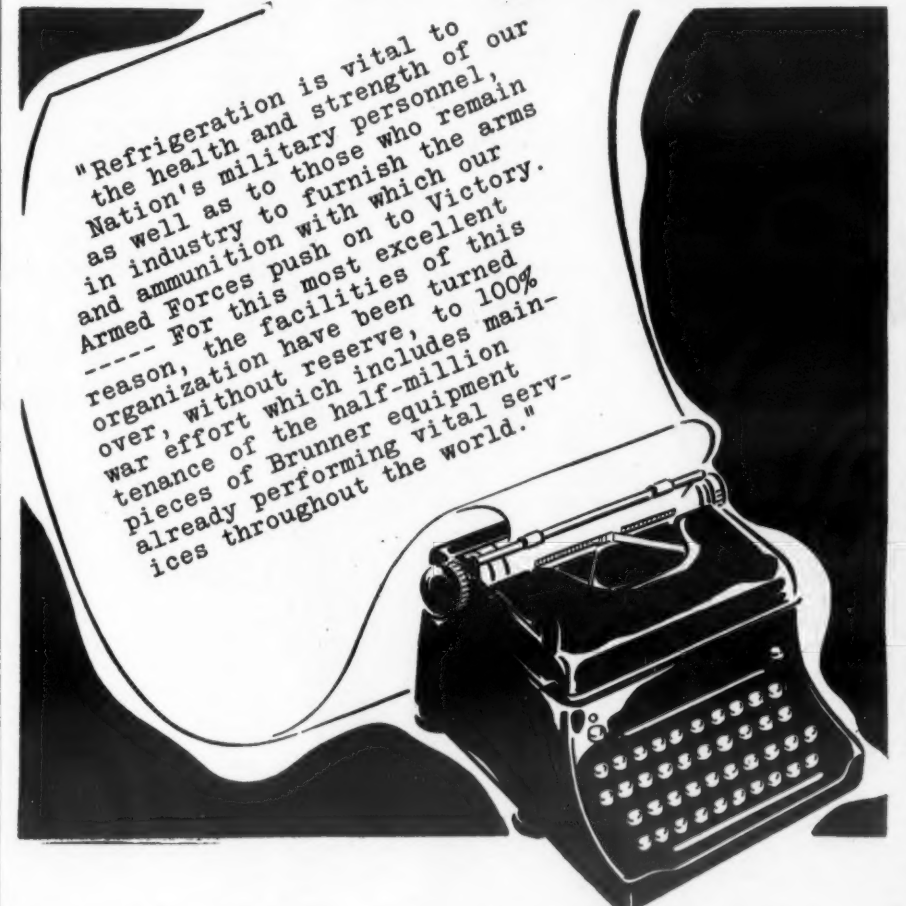
Jeffrey, American Blower Executive, Dies In Detroit

DETROIT—E. P. Jeffrey, vice president of the American Blower Corp., died at his home here last week after a long illness. He was 56.

Jeffrey, who started with American Blower as a mechanic 38 years ago, managed all its plants and manufacturing activities. After the war started, he also supervised the company's war production work.

At one time he was president of the American Welding Society and of the Milwaukee Junction Manufacturers Assn.

...and we quote:



Early in '42, we of the Brunner Manufacturing Company made known our policy for the Duration. Above we have repeated the essence of our war policy because today's food problem is greater than ever...and Refrigeration is shouldering heavier responsibilities day by day.

Where priorities warrant, Brunner swiftly supplies the same top-quality Condensing Units that have gained for Brunner an enviable reputation with the Refrigeration Industry through the years.

But we fully realize that the heaviest burden now rests on the 500,000

pieces of Brunner equipment now hard at work here and abroad.

Therefore, we re-emphasize this fact: Brunner distributors and maintenance men are at your service...to keep your Brunner equipment in A-1 shape...to do the A-1 job expected of it!



BRUNNER MANUFACTURING CO., UTICA, N. Y., U. S. A.

Farm Groups Say Locker Plants Cut Waste, Raise Farmer's Living Standard

Editor's Note: This is the second instalment in a series of selected excerpts from the official transcript of hearings held by the Subcommittee of Food Supply of the U. S. Senate Agriculture Committee on the matter of expansion of locker storage plants.

The editors believe that the testimony will interest readers because it gives a sweeping and factual picture of why the locker storage industry is expanding, and why it has reached the imagination and seized the attention of statesmen, government authorities, leaders in agriculture, and economists.

Grange Goes on Record For More Storages

STATEMENT OF FRED BRECKMAN, WASHINGTON, D. C., REPRESENTING THE NATIONAL GRANGE

The first plant of this kind that I ever saw was located in Senator Shipstead's own State, quite close to Owatonna. I was very much impressed by what I saw in that plant.

As I understand it, there are about 5,000 of these plants in operation throughout the United States today. It is estimated that there are approximately 1,500,000 individual lockers in use, with about \$200 worth of food annually passing through each locker. This represents a \$300,000,000 turnover.

The principal reasons given for the growth of the industry are:

1. Savings in food costs: It is estimated that the average family can save \$100 a year through the use of one of these lockers.

2. It brings better food within reach of those who have access to these facilities. It is claimed that quick freezing preserves flavor, texture, and vitamins.

3. Food shortages and rationing: The reason for the growth of this industry is food shortages and rationing.

In the beginning these plants were used principally for the storage of meats, but the plan was speedily expanded to include vegetables, fruits, fish, and game.

The food-locker plant enables families to store the food they grow or buy, putting it in a safe place during the times of glut and plenty, and

using it as needed throughout the year. The growers of Victory gardens who do not have proper storage or refrigeration facilities in their own homes will find these locker plants invaluable.

I understand that there are going to be about 20,000,000 Victory gardens cultivated throughout the United States today and that a large proportion of these gardens will be grown by town and city people, a good many of them no doubt living in apartment houses where they have practically no storage facilities whatever. And if there were some of these locker plants at a reasonable rate, that it would be easily possible for the people having these gardens to put away some of the fruits and vegetables that they grow, and that they cannot consume immediately, and use them throughout the year. That would have a decided effect in stretching of food supply and giving these people food value for the work that they are going to do on their Victory gardens above what they would have otherwise.

Mr. Chairman, the National Grange is certainly in favor of the further development of these lockers, and in favor of spreading the movement over the country so far as it can be done with the materials that we have available now. We believe that it would have great value in the conservation of food and in keeping the people well nourished, and in keeping up civilian morale which is important in any time of war.

Farmer's Union Head Says 'Save the Surplus'

STATEMENT OF JAMES G. PATTON, PRESIDENT, FARMERS' EDUCATIONAL AND COOPERATIVE UNION OF AMERICA

EDUCATIONAL AND COOPERATIVE UNION OF AMERICA

I am president of the Farmers' Educational and Cooperative Union of America.

Our organization and its various State branches and affiliated cooperatives has had a very intensive interest in the development of cold storage lockers as a means of not only conserving food but of aiding in storage and carrying over for a long period foods which were produced; secondly, as a means of cutting down marketing costs between farm members and local community consumers.

We feel, in this period, that an increase in the number of cold storage lockers would be of service, particularly in the war effort, for a number of reasons:

Cut Shipping Costs

First, as I see it, it would make the greatest possible use of foods available in the local community thus eliminating duplicate transportation costs. As farmers living at a local town and city consumers have made a practice of shipping meats as far as two or three hundred miles away to be processed, and then have them come back through the usual channel of transportation, thus using up transportation unnecessarily, I think this would be a great advantage in curtailing that unnecessary movement.

The same thing is true of fruits and vegetables.

At the present time we are getting a considerable increase and we hope we will get a much larger increase in foods in the field of poultry and in the egg field, we do need all the facilities we can get for the purpose of putting that produce in the best shape. Eggs—our people are specializing in eggs to some degree and those that handle a large production of that tell me that a difference between 1 and 3 days between the time the egg leaves the farm and the time it gets into cold storage makes a great deal of difference in the quality of the egg; that is, that it will break down very rapidly.

More Produce, No More Cost

We feel that for the war and for the long pull, that cold storage lockers are establishing a system which is, in effect, a decentralizing of the produce. It is something that is very much needed.

The whole business of the process of distribution of foods is going to be decentralized from time to time as this moves into operation.

This is certainly true of meats today. And now, with the increased production of vegetables, it is going to be true there also.

Our farmers look upon it as an opportunity and a method for increasing the amount they may receive for their food products without increasing the cost that the consumer pays in, certainly, many instances.

The development of cold-storage lockers in the middle western and western areas, our organization has found out, has been only in a few areas. I feel it should come on and develop in the other areas as a war necessity quite aside from any long time developments.

I do not pose at all as a technical expert in this matter, but only in the field of the needs of our people and also as a means, we feel, of aiding the war effort. We feel that allowances should be made for the heavy increase in the number of cold-storage lockers we have around the country.

Senator Aiken: We are quite glad to get your testimony. You see no reason why if it could be shown that material is available—in some cases the entire plant is available for constructing new plants—why authority should not be granted for such construction?

Relieves Strain on Present Facilities

Mr. Patton. I do not. I look upon food as carrying a parallel importance with many other things. The less strain we have to put upon our transportation system and the various distributing factors that would normally come into play without the cold stor-

age plants the better. We think we are making a saving for the war effort in a number of instances by entering upon a program of this kind.

One thing we need to do very badly is to reduce the wastage of foods. We do not have enough foods in any event. Certainly, we do not have foods enough to waste. We are going to have less. Anything that will reduce wastage and which will aid in terms of efficiency and which will cut down strain and stress on our transportation system and cut down our price ceilings in terms of narrowing the margin of all of those things will be an aid to the war effort.

Senator Aiken. It is your understanding, is it not, Mr. Patton, that locker plants are being used to capacity today?

Mr. Patton. Yes. I know of a number of them specifically where they were being erected by cooperatives, in fact, where our parent cooperatives have helped to finance them, and they were taken up to capacity before they were built. This was before the war started. Now the pressure is even greater. If we can get the materials there would be a great many more plants put in because they can be used to capacity.

There is one other factor that comes into it, which is the factor of manpower in terms of transportation. In view of the fact that you have to have certain men, certain manpower, to keep cooperative facilities going in a community, and there are cooperatives usually in most of these communities, I believe there is more manpower of the type needed to handle this in local, rural communities than there is in cities where there is a demand for workers in defense plants.

Aid to Manpower Problem

Senator Aiken. I think that is one of the strong arguments, because in our villages and small cities the women of the community would be available and able to process and prepare the surplus products to some extent, whereas they might not be available in the big plants in the cities.

Mr. Patton. That is right.

Senator Aiken. I am intensely interested in this last point because I have raised so much and seen it spoil. I, personally, have seen hundreds of bushels of plums, and pears, and apples rot on the ground, just lie there and rot. I have seen my own garden surplus spoil because there was nothing I could do with it. That was because we might have as much as 20 bushels of strawberries some day. I either could not get them picked and packed and into the market, or if I did, I would not get back enough over the cost of the picking and the baskets to pay for the transportation, whereas if a surplus like that could be quick-frozen it could be marketed 6 months later, or it could be sent to the people who live in the nearby towns and small cities and they can process it if they have the plants at those places.

It seems to me that one of the greatest sources of increases of our available food supplies is to save the millions of tons of food supplies in the United States that will spoil if we do not save them. This is certainly

a method by which they could be saved.

Do you agree with me in that, Mr. Patton?

Helping Poultry Raisers

Mr. Patton. Certainly. You have waste going both ways.

There is one other factor you raised there, also. The Bureau of Agricultural Economics shows a great increase in poultry. Our experience in our organization in handling poultry was that since we do not have efficient help except at central points like a cold-storage plant, we are doing two things when we ship which are bad. First, we get our poultry to the market in very poor shape, and secondly, we lose quite a bit because of that fact.

I think people who never have had poultry to offer for sale will be quite surprised if they enter into this business. It has been our experience that people with enough poultry for sale and who offer them for sale find out that even though they may be consumed within the community, that a community equipped with a central point, such as a cold-storage plant, would provide them with a man familiar with the handling of poultry and thereby increase the income of the farmer who produces it.

For the long pull, I look upon this as supplementary to our whole big effort to cut down the peaks and the valleys in the farmer's sales effort. Certainly, after the war it can be used as an agent for encouraging decentralization.

I think one significant thing in relation to this whole business, I believe Iowa is one of the States where you have a large number of cold-storage lockers.

Senator Aiken. The largest number.

Mr. Patton. There you have probably several factors, higher income, higher sensitivity of the need for storing food. Nevertheless, from many points of view, the needs are greater in some areas of the United States where you have a smaller number of people, less production, and not so much net income per capita.

If you will look at it from the standpoint of the welfare of the community, I think you will find it is needed more in those areas.

We have a cold-storage plant in Omaha, Nebr. We sold last year more products to city people there in that cold-storage plant than to our own members. I think that balances it up. We had the same thing happen at Grand Island, Nebr. We have had these same things also in the State of North Dakota and in the State of Montana.

Our facilities are being used as much—I believe I would be safe in saying—for the residents of the towns and communities and cities as by the farmers. It has provided the means of getting first-class farm products to people in the town.

Secondly, it has protected the farmer with a conservation program for the food which he consumes himself.

Thirdly, it gives him a direct market so he does not have to worry how and where it goes.

(Concluded on Page 19, Column 1)

THE JOB GETS BIGGER!

Every day the load on America's refrigerating equipment gets heavier—the responsibility for service grows greater.

With canned foods under strict rationing the need for saving fresh foods is greater. To prevent spoilage of these perishable stocks and to protect the health of civilians and fighters alike, is one of the most critically important jobs in the whole war effort.

For practical help in this job look to Penn. Existing controls must be repaired locally if at all possible. Failing that, if the control is a Penn, send it to the factory—we will repair it as promptly as possible. When repair is impossible new Penn controls are available under the established priority rules. Penn Electric Switch Co., Gosben, Ind. In Canada, Powerlite Devices, Ltd., Toronto, Ont.

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Important

Don't let idle cylinders hold up supplies now available. Look through your stocks and warehouses for any empty cylinders, or cylinders which can be emptied . . . and return them promptly.



40% of Farm Food Wasted In Cases Where There Is Insufficient Preservation Means

(Concluded from Page 18, Column 5)

Farm Bureau Backs 'Save Surplus' Idea

STATEMENT OF W. R. OGG, REPRESENTING THE AMERICAN FARM BUREAU FEDERATION

Mr. Ogg. I represent the American Farm Bureau Federation. Mr. Chairman, I had hoped that Mrs. Roy Wakley, who is the secretary of the Associated Women of the American Farm Bureau Federation, which is the women's auxiliary of our organization, representing some 600,000 rural farm women, would have been able to be here this morning to tell you about the conditions, so far as the farm women of this country are concerned.

I am not able, I am sorry to say, to give you any definite statistics or figures as to the extent of the need for food lockers. However, I have conferred with some of our leaders about it. They tell me that there is a need for an increased number of these lockers in different parts of the country. They state that they can be used very advantageously in saving food that we need so badly. As we see it, an adequate supply of these lockers should be made available in order to save the food. We cannot afford to lose a pound of food this year that is produced which can possibly be saved. Of course, these food lockers have proved very helpful, particularly to people in rural areas.

In the past we have had a great many of them in the rural areas of the South, and they have proved to be very helpful. It is my opinion that these lockers would be particularly helpful now in the saving of fruits and vegetables. We know, with all of these victory gardens under way, there is a possibility, of course, that we will have a surplus for a brief period of time in some areas. Unless we have a means of preserving this food, either through canning or other methods such as quick freezing, there is a probability that we will lose a good deal of food through our inability to absorb it at the time it ripens. That is the way our own group feels about it.

Moreover, the mere fact that as the season goes along, there is a large surplus during the summer months as a regular thing every year. Unless that surplus can be preserved through home canning or through freezing, there is a likelihood that we may lose most of this food that is so badly needed.

In that connection, I think it is also highly important to make available an additional surplus of pressure cookers in order to save the vegetables and fruits that will be available this summer and fall.

There has been made available, I understand, a small additional quantity, but from the information we have, a very much larger quantity should be made available.

Vermont Farmer Gives 5 Big Reasons For Plant

STATEMENT OF ARTHUR PACKARD, MEMBER OF THE BOARD OF DIRECTORS OF THE AMERICAN FARM BUREAU FEDERATION, AND PRESIDENT OF THE VERMONT STATE FARM BUREAU

Mr. Packard. Mr. Chairman and gentlemen, freeze locker plants in Vermont are proving a better way of preserving until needed meats, fruits, and vegetables. By this method housewives whose time is badly needed elsewhere are saved weeks of their

time each year in canning and preserving.

Our first locker purchased and installed in Vermont was by the Richmond Cooperative Association, Inc., on May 7, 1939. Today we have 17 in operation with 21 more in keen demand.

LeRoy Ware, manager of the Richmond Cooperative, says:

Our plant was the pioneer plant in New England and our members are saving at least one-half of their food cost. I mean by this that if the members will grow their own meat, slaughter it, haul it to the plant, and if they wish, cut it up and wrap it, then they have made the saving.

This quick-freeze method not only preserves their product but it can be held over a period that enables them to live well. This means much to men and women who are putting in from 14 to 16 hours daily at hard physical work.

Members who are not farmers may deposit their red rationing coupons with their locker manager until he has sufficient to purchase for them beef, pork, lamb, or chicken of the farmer.

Mr. Ware says further:

Practically all our members can get their meat and vegetables as needed without extra travel as the regular milk truck which collects the milk likewise brings the locker packages to the members as they desire.

Michael J. Mapli, manager of our Middlebury freeze locker, tells us that he believes that the members save up to 40 percent on a beef carcass that would ordinarily be wasted in home storage.

Users Grow Larger Gardens

He says, because of these lockers practically all of their members will grow larger gardens this year.

This is one of our large plants and furnishes storage to townspeople as well as farmers.

Our 17 locker plants in Vermont have about 5,000 locker boxes rented, serving about 3,000 families or 12,000 people.

There is about 1,500,000 pounds of all kinds of meat put through these lockers annually and about 2,000,000 pounds of vegetables.

The average daily turn-over per locker is about 2½ pounds per day. Some of our best estimates are that 60% of our people in Vermont desire locker service. We believe it will definitely put us ahead in the war effort.

The Five Main Points

1. It will definitely hold down cost of living.
2. It will furnish people with the essential food that will tend to keep health at a maximum in this most important period.
3. These lockers stimulate people to produce more meat and vegetables and thereby help themselves, or feed themselves, rather, than to compete for feed which is needed by our fighting forces and our allies. We think it is most desirable to cultivate self-help among our people rather than a living depending on the Federal Government.
4. Freeze lockers prevent waste which must be a national goal in an all-out war.
5. These projects are bringing about cooperation between the farmer and the townspeople. They will find here they have something in common.

Any project that develops friendliness between all our people will be

of great value in the trying months ahead.

Senator Aiken. Mr. Packard, I think you have told us a great deal in a very short time. I am interested in one thing that you said concerning 17 locker plants in Vermont having about 5,000 lockers. Can you tell us about how many lockers they have that are not rented?

Mr. Packard. If any, they have very few. There are some of them, I believe, but very few. I find in our own plant in Vermont that where they still have them that they are renting them at the rate of two and three per day.

Senator Aiken. Do any of them have waiting lists for them?

Mr. Packard. Yes. They do. Some of them have very long waiting lists.

Senator Aiken. Do you think that virtually every locker is used or will be in use within a very short time?

No Idle Capacity

Mr. Packard. Yes. There will not be any idle lockers, very shortly.

Senator Aiken. Have you any idea about what percentage of food stored in the lockers, I believe you said a million and a half pounds of meat and 2,000,000 pounds of vegetables, what percentage of that food would not have been preserved if they had not had the quick-freezing facilities?

Mr. Packard. Well, I think the statement that is made there not only gives that figure but that it applies pretty well to that. In fact, I think the statement that is made there is one place by Mr. Mappi that 40% of the meat and vegetables are in quite a danger of being wasted if they had not gone through the locker, even granting that with efficient methods of home preservation, and in a good many instances they do not have them and the goods do not keep even when they do; in fact, when they once open up a jar of something, unless it is used very promptly, it spoils. This has numberless advantages over any of our older methods.

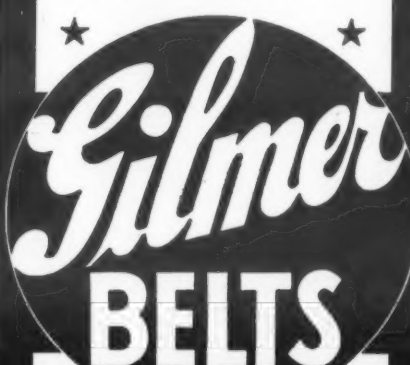
Senator Aiken. Have there been many instances of spoilage of food in a locker plant?

Mr. Packard. No, no. Perhaps you all know that when a family goes in there with meat or vegetables, the locker manager immediately finds out the size of the family and these packages are put in a size that fits that family, so that when they take home a package to use, it is just about adequate for that family's needs that day.

Operator's Leader Tells Contribution To War

STATEMENT BY HORACE L. TITUS, STERLING, COLO., PRESIDENT, NATIONAL FROZEN FOOD LOCKERS ASSOCIATION

Important war production can be halted through so simple an accident as the failure of a belt on air conditioning and refrigeration equipment. Little things can do a lot of harm.



That's why you'll find it wise to feature Gilmer Belts, and be set for replacement business and service jobs of this type. Rugged, long-lived, efficient Gilmers are good-will builders that bring you a profit. Order through your jobber... he's ready with Gilmers.

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Tacony, Phila. 35, Pa.

Mr. Titus. I am the owner and operator of an ice and cold storage business. Connected with that is our frozen food locker plant in a town, in an agricultural community, of some eight thousand people.

Our first lockers were put in in 1933. We were among the pioneers in this business in the West. We operated that plant for about 5½ years. In the spring of 1939, we more than doubled our capacity, modernized our locker plant, and today we have practically a complete service plant which includes slaughtering and the processing of meats and fruits and vegetables, curing, smoking, modern kitchen for the preparation of vegetables and fruit, packaging, and quick-freezing facilities.

It happens that last fall I was elected as president of the National Frozen Food Lockers Association, and from time to time since then have represented the industry here in Washington, largely in collaboration with the OPA in writing some of its programs.

Senator Aiken. Would you tell us something about your organization? What is the membership of it?

Mr. Titus. The membership at the present time numbers about 1,500.

Senator Aiken. Does that include both cooperative plants and privately operated plants?

Mr. Titus. Yes. So, from the position that I am in I hardly know just what I can present to this committee that would be of value here.

However, I think with your permission I would like to present very briefly one or two short excerpts from a factual analysis of the industry that was prepared by one of the economists of the OPA with my collaboration during the winter months. I would like to read very briefly our conception of the contribution of the industry to the war effort.

The locker industry renders a service that is peculiar to itself. Its techniques are separate and distinct from all other types of food-handling establishments. It is neither packer, wholesaler, retailer, commercial processor, or storage establishment; yet it combines some of the functions of all of these, going even farther in ultimate service. In effect, it is a processor of food derived largely from home-raised products, and through its freezer locker facilities provides a source of supply for nonproductive seasons at the consumer level. It is, therefore, impractical to try to handle locker-ratting procedures in the same man-

ner as other establishments whose methods are not parallel.

While the frozen food locker industry is comparatively new, it numbers some 4,600 plants, operating in 47 states, and serving nearly one and a half million patrons. It has an annual turn-over of over three-quarters of a billion pounds of food. Nearly four-fifths of its patrons are farmers, representing about one-fifth of all farm families in the United States.

Makes For Self-Sufficiency

In that it tends to make of each family a self-supporting food unit, the United States Department of Agriculture has consistently approved and encouraged the frozen food locker industry in its efforts to provide local self-sufficiency for rural families. The locker plant is a responsible agency, registered and licensed, with established methods of dealing with its patrons.

Definition of locker plants: A frozen food locker plant is a place where freezer storage is provided for individual families who desire to store perishable farm products such as meat, poultry, eggs, butter, fruits, and vegetables. These products are quick frozen and stored in compartments or units or lockers. Locker plants also generally provide processing services of one sort or another for meats and vegetables.

Services rendered: The early locker plants were places where a patron could store his bundle or basket of food at temperatures that were usually below freezing. Today many locker plants are complete food-handling units where meats, poultry, and vegetables are processed and stored at uniform temperatures, usually about 0° F. These plants and the continuing adaptation of their equipment to local needs are but natural steps in the progressive task of bringing refrigeration closer to the farm home.

Locker plants do not replace household refrigerators, pressure canners, or curing barrels. They are a means of supplementing canned and home-preserved food, thereby maintaining a more adequate food supply at all seasons of the year. They appeal to patrons because of the improved quality of food processed and stored by locker plants over home-preserved food; also because the cost of food handled in this manner is always materially less than prevailing retail prices.

(Concluded on Page 20, Column 1)

The Price of Reputation

REPUTATION is never completely earned—it is always being earned. It is a reward—but in a much more profound sense it is a continuing responsibility.

That which has been accorded a good reputation is forever forbidden to drop below its own best. It must ceaselessly strive for higher standards. From him who gives much—much is forever after expected.

There is no greater responsibility than the responsibility which reputation compels all of us to assume.

The man who builds and the man who buys are both beneficiaries of a good reputation. To the one it is a continuous spur and incentive—to the other the strongest of guarantees that what he buys is worthy.

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Testimony To Senate Compares Various Methods of Home Food Preservation

(Concluded from Page 19, Column 5)
Data on Wastage

Senator Aiken. You heard Mr. Packard relate that one operator stated the probably 40% of the food stored there would have been wasted or misused at least if the quick-freezing facilities had not been available. What do you think of that estimate?

Mr. Titus. That is a rather hard question to answer because your unknown factor there is spoilage in the home preservation of your foods, both in meats and in vegetables, particularly. The wastage that is due to inefficient methods of preserving on a farm, I would say, are rather substantial. Therefore, I would say that perhaps between 30% and 40% is a correct figure.

Senator Aiken. That is to say that this is the percentage which would not have been preserved at all?

Mr. Titus. That is right. Particularly of the vegetables; they would have just spoiled on the ground.

Mr. Titus. Yes.

Senator Aiken. It would be higher than in the case of meat. People try to save their meat and we all know that in order to prevent spoilage they overeat at certain periods of the year and undereat at other times. Is that not so?

Mr. Titus. That is right. As to our ideas regarding the contribution of the locker industry that it is making toward the war effort, I would like to quote here from a little brief that was prepared quite recently:

CONTRIBUTIONS OF FROZEN FOOD LOCKER PLANTS TO WAR SERVICE

"Home-raised food is a foundation stone in the Nation's wartime food program. Victory gardens, back-yard poultry, and home-grown meat and dairy products are the extra means by which food production can be increased and commercial products and transport released for war use. Frozen food lockers have a peculiar contribution to make toward this end. To a

greater degree than most other methods of local food preservation locker plants help to conserve food, feed, critical materials, and manpower.

How It Conserves Food

"Conservation of food.—The locker-plant system of processing and preserving food conserves these products because—

"1. Freezing provides a local method for preserving food without spoilage. Considerable spoilage always results from improper or inexperienced canning or curing; from canning non-acid vegetables and meats without a pressure cooker; and from trying to cure meat at home when the weather is too warm—about 40°—as is largely true throughout the entire winter in the South."

2. Freezing provides an easy way to salvage the extra pints and pounds of food that are too small to justify the cost or trouble of marketing or canning.

3. Quick frozen foods, in contrast to those conserved by other methods retain practically all their inherent fresh food characteristics, flavor and vitamin content; thus adapting themselves to a balanced diet of high nutritional value to the consumer.

4. Local freezer storage makes it possible for town residents to make maximum use of locally grown perishable foods.

"Conservation of feed.—Animals and poultry can be slaughtered and processed at any season of the year by the locker plant. This makes it unnecessary to feed until cold weather sets in or until the meat is actually needed on the table. On the contrary, these products can be dressed and put into frozen food lockers, whenever they have reached the proper condition.

How It Conserves Travel

"Conservation of transportation.—The continuing diversion of food and transport from civilian use has already created acute shortages and maldistribution in many communities. Rural areas, off the main line, have suffered most. Realizing that these dislocations are to be chronic for the duration rural families have set out, patriotically and in self defense, to grow their own. Local freezing units provide a means to preserve this food at home so that adequate nutrition can be maintained without the normal use of rail and truck. It has been estimated that each locker plant can save from 50,000 to 100,000 ton-miles of freight in and out of its community in a year."

That is perhaps more appreciated if you multiply it by 4,600 plants which gives you a figure of something like 400,000,000 ton-miles saved each year by the locker plants.

As to the conservation of critical materials:

How It Conserves Materials

"Freezing requires a limited amount of metal in proportion to the tonnage of food handled. Metal needed for the construction and refrigeration equipment of a plant containing 300 to 500 lockers is about 30 pounds per locker or some six pounds of metal per 100 pounds of food processed annually. Metal allocated to freezer storage need not be replaced each year but gives continuous service over a period of 10 years or longer. No metal is needed for packaging. This conservation of critical materials compares with the 25 pounds of metal needed each year to put 100 pounds of peas, for example, into No. 2 cans."

Senator Aiken. That is only used once.

Mr. Titus. That is only used one year. Whereas the material that is used, the comparison there being 30 pounds of metal to 100 pounds of food material, as compared to 25 pounds for tin cans, and your 30 pounds is a permanent investment in metal whereas your 25 pounds is a recurrent waste every year.

"Conservation of manpower.—To the extent that locker plants eliminate the need for hauling raw materials out and the finished products back to a community they relieve the strain on transportation, saving manpower as well as hauling capacity, tires and gasoline. By stimulating the home production of food they create useful jobs for the extra, miscellaneous hours of family labor, reducing the load on terminal food-processing plants.

"Over-all contribution to war service.—There is a tremendous need for the rural family to plan ahead, to be just as self-sufficient as possible, to reduce their demand on outside service and transportation. Locker plants serve an important function in making both families and communities more self-sufficient.

"If the nation is to capitalize the initiative and labor of rural communities it is essential that those people be provided with effective means for preserving home-grown food. All the methods of food preservation will be of service in making a well-balanced diet available throughout the year. Freezer storage is one of the safest, simplest, easiest methods of them all. The small amount of metal needed to provide freezing facilities would seem to be a sound wartime investment."

Food Supply Sub-Normal

So it seems to me, Mr. Chairman, that the main question that has prompted this inquiry is the preservation of food, and especially as it refers to vegetables and fruits. I happen to have stumbled on an estimate of the probable supply of fruits and vegetables processed that would be available during the winter of 1943 and 1944. This indicated that that supply would only be about 30% of normal.

Moreover, if the estimates of production have been miscalculated or if, having had 2 years of good growing weather, we happen to run into a nonproductive season, that situation may become even more serious.

So that the program of war gardens, Victory gardens, "grow another bushel campaign," that program is certainly very vital to the nation's food supply.

The government has encouraged the production of more and more food, and particularly vegetables and fruits, and having encouraged that production, it seems that the logical thing to do would be to provide means for conserving that food once it is produced.

You have three methods at the consumer level for conserving food: 1. Canning. 2. Dehydration. 3. Freezing.

Compared to Canning

Speaking from the consumer level, the process of canning is hampered by the inexperience of the average housewife, who ordinarily does not do a great deal of this. Also, by the lack of equipment. It is necessary to have pressure cookers, strainers, labels, baskets, wicker baskets, and a lot of other equipment needed in the kitchen, equipment unobtainable at this time. It is not being made any more. So they are going to be handicapped by the lack of equipment.

Then also comes into that picture the question of spoilage due to two things: Lack of experience in preparing food, lack of equipment with which to prepare it, and the spoilage under home canning is apt to be very much.

Then you have the method of dehydration which as yet is largely experimental and of which the average housewife has no knowledge whatever.

Then you have the third method of freezing which, by reason of its adaptability seems to be the most practical plan. It is the simplest method of preparing food for preservation. The housewife has very little work to do and what little there is is very simple and very easy. There is no difficulty. The frozen food locker plant receives the merchandise and the frozen food agency does the rest of the job. So it would seem that the freezing method is the more practical.

Congressman Tells of Cracking OPA Argument

STATEMENT OF HON. WILLIAM J. MILLER, A MEMBER OF CONGRESS FROM THE STATE OF CONNECTICUT

Mr. Miller. I am directing my remarks more to the consumer point of view. I want to say that this subject is particularly important in my State. It is comparatively new to me but there is a tremendous interest and a tremendous demand from the people up in my part of the country that some way be found so that they can buy these lockers and utilize them.

Senator Aiken. I think as quick-freezing lockers are learned about by the people of this country there will be no State in the Union that will be more interested than the State of Connecticut.

Mr. Miller. There are 29 cities and towns in my district, 25 of which you

can classify as semirural, an ideal type of community for the development of the Victory garden program. I think the one thing that is retarding the Victory garden program at this time is the feeling that there will be difficulty in securing Mason jars and equipment for canning of that type, such as pressure cookers, and so forth.

As an indication of that, I have a letter here from a gentleman whom I know who has used these units for some little time. I believe he also has sold them at one time. He went out and made plans for the erection of a 500-public locker and then he sold the space on an if, when, and as he can get the material and get it put up. In two and a half weeks over 500 lockers were subscribed to and the money put on the line on this very indefinite if, as, and when basis. I think that indicates that if they are available there will be no question as to their popularity.

I think we will make a very real contribution toward the conservation of food by the erection of these plants.

There is one other angle that I think is rather convincing. In my district we have large tobacco plantations. They are particularly interested in this type of plant. These plantations are feeding anywhere from 75 to 100 men. They can raise a good deal of their own food supplies on the farm and the tobacco will be their money crop if they have some way of freezing it. I think that would prove a valuable thing to that type of plantation.

Regulations Sufficient

Up until recently—and by "recently" I mean 4 or 5 weeks ago—I was informed that the OPA, and, in some instances, the Department of Agriculture, had a feeling that this was a device to evade and get around the rationing program. There may be some remote possibility that it could be used for that. However, it certainly could be regulated. Every individual producer and purchaser alike could be required to submit proof that he is storing foodstuff that he has raised himself, and that he will store in this freezer, and that he will not go out into the open market and buy this material just for that purpose. Those who man and run public lockers can be required to submit proof that it is their own home-grown product that they are putting in there.

With those two restrictions I cannot, for the life of me, see how it could be successfully used to get around the rationing program. That is the only objection I have heard expressed to the granting of any material for the distribution of these lockers.

There is not going to be very much planting of Victory gardens on any really worthwhile scale unless there is some way of preserving the food. In any event, if they did plant it and they had no way to preserve it, it would simply be a waste of time in any event. I do not believe people are going to plant worthwhile Victory gardens unless they know that there is some way that they can preserve the products of those gardens when they are ready for harvesting.

Says People Driven To Black Market In Cabinets

STATEMENT OF CARL F. MOHR, OF AURORA, ILL.

Mr. Mohr. Mr. Chairman and gentlemen, my name is Carl F. Mohr, Aurora, Ill. C. F. Mohr Associates is the name of my firm.

(Concluded on Page 21, Column 1)

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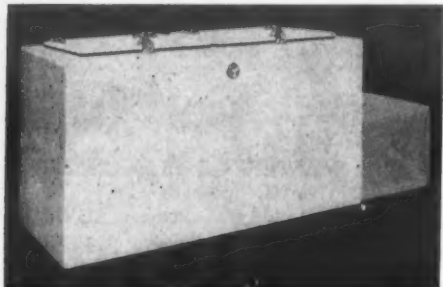
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PITTSBURGH PENNSYLVANIA

Rush To Get Any Available Food-Preserving Equipment Reveals Present Need For It

(Concluded from Page 20, Column 5)

Senator Aiken. Mr. Mohr, you are an operator?

Mr. Mohr. Yes, sir; and I furnish locker plants with equipment.

Senator Aiken. You are also an operator of a locker plant yourself?

Mr. Mohr. I have a locker plant of my own. I built the first four locker plants in the State of Illinois.

Eight years ago we advocated the locker industry for the simple reason that we thought it meant better food at less cost. The farmers were in the habit of doing their own killing. Of course, farmers would preserve their own food crops as best they could. I mean vegetables and that sort of thing. However, the fact remained that there was so much waste and so much spoilage from the farmers trying to do their own preserving that the locker industry was advocated because freezing eliminates wastage and spoilage.

Research Backs Up Claims

The state universities all through my section of the country have gotten back to this movement and they have all their experimental stations for freezing. They tell us that you can preserve the vitamins contained in food better by the freezing method than any other method of preserving food. I think we all realize that food is at its zenith only once. I do not care whether it is a hog or a chicken or a pea or a bean, there is just one time in the life of that food when it is absolutely at its zenith. Obviously we cannot consume it all at that time. Therefore, there must be some method of preservation.

Since we have not been able to get the material to build locker plants, we have had them stop making ice cream. That has thrown onto the market a lot of freezer cabinets that were designed for ice cream. Hundreds and thousands of those cabinets have been quickly bought up by the public with the idea of conserving their food.

Senator Aiken. Mr. Mohr, do you know whether these cabinets have been bought out by speculators to any extent?

Mr. Mohr. Yes. There has been some of that done.

Senator Aiken. In other words, you are satisfied there is a black market of a fairly large size in quick-frozen equipment?

Mr. Mohr. Yes. Unquestionably there is a rather large black market in this type of equipment.

High Prices For Old Cabinets

Senator Aiken. I am afraid there is, too, because of my neighbors advised me yesterday that he had an offer of a 17-cubic-foot home quick-freezing unit plant which ordinarily would sell for \$400 to \$600. He was told that he could have this at a price from \$1,100 to \$1,200. It was over \$1,100, I will not say just how much.

It is very evident that there are those that are taking advantage of this situation by buying up these plants, and getting all these small units particularly at whatever they have to pay for them and then selling them at greatly inflated prices.

I presume and I understand that all of the second-hand ones that were used to take care of ice cream, ice cream storage units, have been bought up in many instances, and that they offer them for twice or even two or three times or even more the actual value of these units when they were new.

Is that your information?

Mr. Mohr. That is very true. I went up, or rather called up a place in Chicago who had a lot of these cabinets, all old ice-cream dealers' cabinets, about 3 or 4 months ago, and I found out that they had thousands and thousands of them available. I called up 3 weeks ago and there are none available. It has just taken them that long for the people to have grabbed up either by individuals or by speculators all these units.

And you are speaking of a black market, the price of these cabinets 3 months ago, you could have bought some of them at second hand for as low as \$50 or \$100. Now the one, as you are talking about, has gone up into the hundreds of dollars. They want hundreds of dollars for these ice-cream cabinets. Moreover, the sharp freezing cabinet designed for ice-cream, as I understand it, most

of them have only 4 inches of insulation.

It would cost around \$3 or \$4 for power to run one of these cabinets, and yet the people are very panicky about the idea of how they are going to conserve the food from their victory gardens.

The locker business is either right or wrong. It is either good or bad. It is either the best or there is another method that is the best.

If it is the best, it would seem to me we ought to get behind it and help it in every way we can. If it is not, let us find the best method there is and let us do it that way.

A Virginia Farmer Says 'Give Us a Way To Feed Our Farm Help'

STATEMENT BY R. J. RANDOLPH, FARMER, MIDDLESEX, CO., VA.

Mr. Randolph. Mr. Chairman and gentlemen, I feel a bit out of my own element here. I am just an individual farmer.

Senator Aiken. That makes two of us.

Mr. Randolph. I am glad to have company, Senator.

Senator Aiken. I am a farmer. For that reason, the interest of the farmer is always very close to me.

Mr. Randolph. I am glad to know it. I have been listening to what has been said here with a great deal of interest. My only purpose in appearing before this committee, Senator Aiken, is the fact that we have been trying, at least, I have been trying to get a farm freezer for my farm. I have gone through all the red tape, and so forth and so on, almost endlessly, and at the end of it I found out that even though there is no priority, apparently, on what I want to get, yet there are none on the market. I have been trying to develop a manufacturer or somebody who can furnish me with a farm freezer. I think that the farmers especially in the isolated sections of the country are at a great disadvantage. That is especially so in my case. I am working down in Middlesex County, where we are 40 miles from the railroad. Transportation is difficult and slow.

In the old days we were dependent on river transportation. The river transportation was furnished by way of steamboat run by the Pennsylvania Railroad.

Trucks came in competition with the steamboats. The steamboats were taken off the rivers. After that competition of the steamboats was gotten rid of, the prices of transportation naturally went up.

At this present time we are rationed on gasoline and rubber, which further cuts down our transportation facilities.

Both Locker & Farm Freezer

In farming, we have many elements, as you know, Senator, where it is impossible to delay, such as lambing, and reaching our market at the proper time. There is a wonderful opportunity for the conserving of food products in this freezing operation. A lot of our stock, such as veal, lambs, chickens, pork, and so forth, come at periods when the market is not right, or there is no market at all for them. In the handling of pork, as you know, we salt it down in the old way, which is not a very good method.

If we had farm freezers, the farmer has a background and it is a definite basis upon which to build your locker system, to educate the farmers to make the farmer locker conscious. Then he would do his best to encourage putting in locker plants in his community.

His farm freezer, however, is a very necessary auxiliary to the locker plant, in my mind. I say that because if we have a locker in our community it is generally the butcher who processes the meat, kills it, and packs it, and puts it in proper portions to be handled. However, we are, as a rule, from 5 to 10 miles, even 15 miles from our county store. If we have to make trips to that county store to get the food from the locker and take it back to the farm and put it in the ordinary ice box or under ordinary methods in use on the farm for conserving meat, we are likely to take out more than we can ordinarily

use because of the gasoline used on the trip.

If, having the farm freezer as an auxiliary to the community locker plant that is furnished, I think it would encourage the conservation of food beyond estimate.

Senator Aiken. What is your opinion of the estimates which have been given by some of the other witnesses that 30 to 40% of the food stored in the quick-freezing locker plants would be lost if the quick-freezing facilities were not available?

Feeding the Farm Help

Mr. Randolph. I think that is very conservative, very conservative. We, of course, in Tidewater, Va., who have fish, game, oysters, and other natural food products coming in season, we could conserve a lot of them which are wasted otherwise or distributed among neighbors, and so forth, and so on, to be consumed when it is not necessary.

Farmers in our section are employing and keeping on the farm the year round from five, six, to eight, to 10 hands. We have to provide food for those people.

This rationing system among that type of person is a thing that has worried them to death. They do not know what it is all about. We cannot teach them conservation because they do not have any way of conserving food, and we have got to keep them going ourselves.

We estimate that 30 or 40% wastage of food that we have heard, there, I think that estimation is very conservative based on my own experience and upon the experience of my neighbors that has been related to me not once but many times.

For instance, we are putting in this year three times the gardens on farms that we did last year to conserve or to give us fresh vegetables. It is a very necessary thing. We can use about one-third of that garden product by direct use. There is at least two-thirds of that that goes to waste, or is too far gone to use; in other words, it is overgrown. We could preserve that food and make excellent use of it.

In our section we do not have any locker plant at all. We need it very badly.

I feel from the conversation I have had with my farmer friends down there, if we could get individual farmer freeze-lockers from 15 feet to 30 cubic feet capacity, we could get along, that would make our locker consciousness developed and encourage the conservation of our food.

Senator Aiken. You have been thoroughly unsuccessful in getting priorities for the purchase of the facilities?

Mr. Randolph. Yes, sir. I went through all the regular bureaus, and so forth, and so on, and I got a notice which said that it was not necessary to have a priority, that this material had been released if materials were in the process of manufacturing, and there was no priority needed for the manufacturing to put it up.

I found manufacturers in one or two instances who, due to technicalities, found it impossible to deliver their freezers, although they had them on the plant, and they did not need priorities, as I understand it, to put it in the market, but due to certain technicalities and the way the orders read, it was impossible for them to market them.

I believe there are quite a number of farm freezers and locker plants that could be had if the issue could be brought to a head. I am told that by reliable people. I have no manufacturing interests, no axe to grind. All I want to do is to get a farm freezer.

Save This Year's Surplus

Senator Aiken. We hope that through our combined efforts, and that means the efforts of all the people of the country, both city and rural, we will be successful in getting some facilities in time to take care of this year's crop, because this year's crop is going to be extremely valuable, and extremely vital as a factor in whether we pursue this war to a successful and early conclusion. That is my opinion.

Mr. Randolph. That is right. You take the farm labor down in our section. They come in there and take them away rapidly. They take away three busloads from the farms which go out every morning which go to Newport News, Va., for war work. We are glad to see them go into essential war work, but this is taking our farm labor away from us.

With the labor we have, if we can take the food with the hands and labor that we have, if we can take that food when it is ready and immediately process it or put it in freezer, we can save it. But if we have to package it and get it right off to the market and ship it, it does not pay us to do it. However, for our present labor on the farm we do not have enough labor to put it in packages and ship it into the market and save it that way.

Pete Bove Tells What It Means To Vermont

STATEMENT BY PETER A. BOVE, RUTLAND, VT., REPRESENTING SEVERAL VERMONT COMMUNITIES

Mr. Bove. Mr. Chairman and gentlemen, my name is Peter A. Bove. I am from the city of Rutland, Vt. I am representing several Vermont communities who are desirous of putting in locker plants.

First of all, I want to call your attention, Mr. Chairman, to the fact that in Vermont we are very proud to be the leaders in this industry, from the New England point of view, and by that I mean that Vermont has 17 plants where the rest of the States in New England have barely one or two; that, in a measure, this was due to your farsighted vision, Senator Aiken, when you were Governor of the State of Vermont and saw this thing develop some five or six years ago. [Applause.]

We have, as Mr. Packard has told you, 17 plants in Vermont. They are taxed to their utmost capacity and have a waiting list in most of the plants of some several hundred

would-be patrons. We are confronted with the situation now where there are 20 communities on record at the present time that would like to install these plants at the present time.

Again, Vermont is unique in lots of respects, not only from the point of view that it has more cows than it has people, but from the fact that transportation, labor shortages are very, very acute, and since gasoline has become more and more restricted, it seems to me that communities in States like Vermont have got to become self-sufficient.

I do not know of a better way to accomplish this purpose than by establishing of food locker plants. I disagree with Mr. Titus and Mr. Mohr to the extent that they base their argument upon the point that "if there seems to be a need for these plants." I say there is a need for these plants, particularly when the Federal Government has asked people to get down and raise gardens, not merely victory gardens, but I know of some communities where they have set out acres and acres of land which have been turned over to people so that they can raise crops and vegetables so that they will not go hungry.

In Vermont, I have said we have no cold-storage facilities to speak of. From the morale point of view, I think in these communities instead of having people getting panicky like they have and creating a condition like Mr. Mohr spoke about, "that is about buying ice cream cabinets and so forth," that were they sure that they could have these locker plants in these same communities, people would resolve themselves to plant and raise food for their own purposes and it would stop them from getting panicky as the situation now is.

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by

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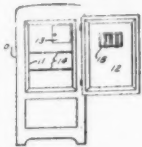
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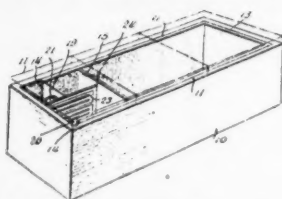
Weeks of June 29-July 6

2,322,769. REFRIGERATOR CABINET. Oscar E. Norberg, Cincinnati, Ohio, assignor to Gibson Electric Refrigerator Corp., Greenville, Mich., a corporation of Michigan. Application May 26, 1941, Serial No. 395,129. 11 Claims. (Cl. 62-89).



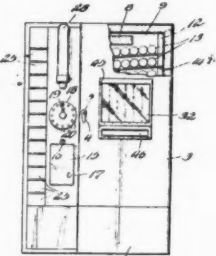
1. A refrigerator cabinet comprising a main refrigerated food storage compartment, an auxiliary compartment in said cabinet arranged to receive heat from without the cabinet whereby to maintain the auxiliary compartment at a temperature above that of the main compartment, said auxiliary compartment comprising a shell having an access opening communicating with the main compartment, a closure hingedly mounted in said cabinet and adapted when in one position to close said opening, and latch mechanism associated with said closure for releasably latching the closure in a predetermined position relative to the shell, said latch mechanism being adjustable whereby the position of the closure determined by said latch mechanism may be varied between a fully closed position and a partially opened position to vary the temperature within the auxiliary compartment.

2,322,882. REFRIGERATION APPARATUS. Walter Baskin, New York, N. Y. Application April 18, 1942, Serial No. 439,470. 7 Claims. (Cl. 62-102).



1. In a refrigerated cabinet including a housing, a fast-freeze section and a storage section, the exterior walls of said sections being spaced from the walls of said housing to define a passage, said fast-freeze section being apertured with respect to said passage for circulation of air therethrough, at least some of said section walls including refrigerated surfaces, and means for circulating air in said passage, over said refrigerated surfaces and through said fast-freeze section, whereby the entire refrigerated surface in said passage will become effective for refrigeration within said fast-freeze section.

2,322,990. COMBINATION REFRIGERATOR AND VENDING MACHINE. Milton L. Smith, Chicago, Ill. Application Jan. 16, 1940, Serial No. 314,159. 12 Claims. (Cl. 62-89).



1. In combination with a refrigerator having a door, means forming a recess in the front surface of the door constituting an article compartment in the door adjacent to and accessible from the outside of the refrigerator while the door is closed, said compartment being warmed by the ambient medium at the outside of the door and cooled by the ambient medium at the inside of the refrigerator, and heat insulating means constituting a rear closure for said compartment for inhibiting but not preventing the conduction of heat from the compartment to the interior of the refrigerator.

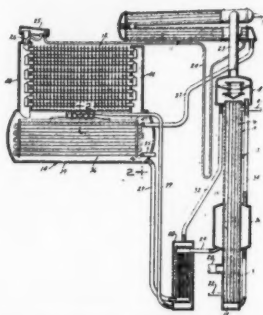
2,323,122. AIR CONDITIONING. Robert B. Crawford, Washington, D. C. Application Nov. 8, 1940, Serial No. 364,925. 5 Claims. (Cl. 257-122).



4. An air conditioning system comprising a subterranean channel permeable to ground water, a rotatable conduit extending through said channel, means for supplying a hygroscopic solution to the interior of said conduit in heat exchange relation with ground water in said channel, and means for passing a stream of air through said conduit.

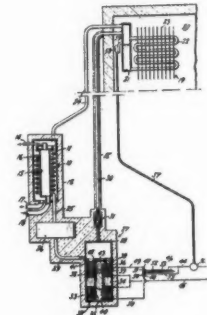
2,323,186. REFRIGERATION. Philip P. Anderson, Jr., Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Aug.

26, 1941, Serial No. 408,318. 8 Claims. (Cl. 62-119).



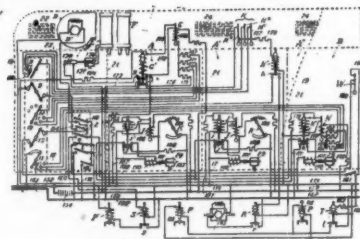
1. In an absorption refrigeration system having a generator, a condenser, an evaporator and an absorber, and members connecting the aforementioned parts for circulation of refrigerant and absorption, liquid, structure to subdivide liquid including a liquid holder and a cover plate arranged to fit over a side wall of said holder, said plate being indented to provide relatively small passages for siphoning liquid upwardly in fixed paths of flow by capillary action from within said holder over said side wall.

2,323,312. REFRIGERATION. Edmund A. Penander, Yonkers, N. Y., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application March 4, 1938, Serial No. 193,943. 3 Claims. (Cl. 62-2).



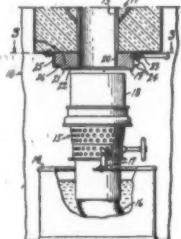
3. In combination, an enclosure, an evaporator of the flooded type to effect cooling of air in the enclosure, a heat transfer system including said evaporator and a condenser below said evaporator, a device for lifting liquid from said condenser to said evaporator at a higher level, and a control including a part associated with said evaporator and affected by the liquid level in the latter and also by ambient air temperature in the vicinity of said part.

2,323,336. TEMPERATURE REGULATING AND VENTILATING SYSTEM. Paul B. Parks, Oak Park, and Timothy J. Lehane, Chicago, Ill., assignors to Vapor Car Heating Co., Inc., Chicago, Ill., a corporation of New York. Application July 5, 1940, Serial No. 344,122. 10 Claims. (Cl. 257-3).



10. Means for regulating the temperature within a space comprising ventilating means for circulating air through the space, means for either heating or cooling this circulating air to desired selected temperatures, means independent of the ventilating means for individually heating the air in the space, means for locking all heating means out of operation when the cooling means is operating, and manually set electrically actuated control means for putting the ventilating means into or out of operation and rendering both the heating and cooling means ineffective when the ventilating means is out of operation, and means rendered operative only when the ventilating means is out of operation for controlling the individual space heating means to prevent the space temperature from falling below a predetermined minimum.

2,323,349. REFRIGERATOR. Harry C. Shagoloff, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Dec. 26, 1940, Serial No. 371,626. 11 Claims. (Cl. 62-1).



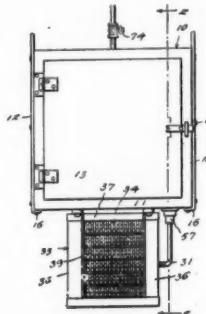
2. In a refrigerator having a heat-receiving element provided with a flue, a burner including a chimney removably mounted beneath said element with said chimney substantially in alignment with said flue, a member supported for movement independent of movement of said burner or chimney and substantially axially of the flue and chimney, said member having a portion in movable engagement with the lower end of the flue and another portion adapted to engage the top of the chimney and effect a seal between the contiguous ends of the flue and chimney.

2,323,364. CONSTRUCTION OF COOLING UNITS. Louis Weiss, St. Louis, Mo. Application Nov. 27, 1940, Serial No. 367,318. 6 Claims. (Cl. 62-89).

1. In combination with an elongate open top beverage cooling cabinet, a cooling unit within the cabinet, means for circulating a cooling medium through the unit, the unit consisting of a plurality of

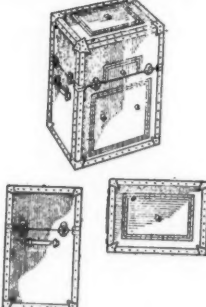
lengths of tubing, and bridge elements maintaining said lengths of tubing in spaced parallel relation, the lengths of tubing being formed to present top-open cells of substantially rectangular form, the length of each cell being substantially the width of the cooling chamber of the cabinet, said cells being spaced from each other a distance substantially equal to the width of the cells, the lengths of tubing between the cells constituting partitions arranged one between other adjacent cells, and forming with the walls of the cabinet, two separate half-size cells intervening between alternating top-open cells.

2,323,270. DRY ICE REFRIGERATING UNIT. Alvin Zieselsch and Stanton W. Smith, Portland, Ore. Application April 1, 1941, Serial No. 386,331. 4 Claims. (Cl. 62-91.5).



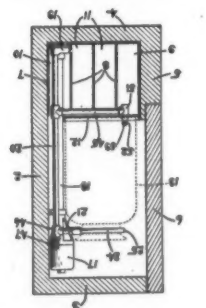
1. A combined refrigerating and air circulating unit for insertion in a refrigerating chamber, comprising a housing adapted to receive a solid body of carbon dioxide, a closed refrigerant system correlated with said housing and including a flat closed receptacle in said housing and constituting an inner bottom therefor adapted to support said solid body, an air cooling coil dependently supported from said housing, means connecting one end of said coil to said receptacle, means connecting the other end of said coil to said receptacle, a check valve interposed in said latter connecting means, a fluid circulating means connected with said latter connecting means between said check valve and said coil, a fan disposed adjacent one side of said coil for forcing air through the convolutions thereof, an expansion chamber and means connecting said expansion chamber with said first connecting means.

135,896. DESIGN FOR A PORTABLE REFRIGERATING CABINET. Leonard F. Clerc, Chicago, Ill. Application Nov. 25, 1942, Serial No. 108,871. Term of patent 3 1/2 years.



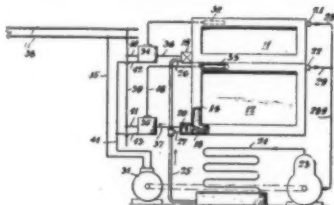
The ornamental design for a portable refrigerating cabinet, as shown.

2,323,308. REFRIGERATING APPARATUS. Joseph W. Chamberlain, Zeeland, Mich. Application Aug. 4, 1941, Serial No. 405,277. 11 Claims. (Cl. 62-141).



1. A device for showering a spray of cooling fluid over and around a receptacle for cooling the substance therein comprising, a main conduit for passage of the water, two other conduits pivotally connected to said main conduit on a vertical axis, said other conduits each curved to pass partially around said receptacle and movable toward or away from each other in a substantially horizontal plane to a closed operative position or to open position to permit receptacles to be inserted or removed therefrom, and a plurality of openings in said other conduits, whereby cooling fluid under pressure passing therethrough will be sprayed over the receptacle.

2,323,354. REFRIGERATOR. Clyde M. Rees, White Plains, N. Y. Application



Dec. 10, 1941, Serial No. 422,351. 4 Claims. (Cl. 62-8).

1. In a refrigerator the combination

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REMOTE ICE cream cabinets. Round holes, brine. All in good condition, all are complete. No units. Six dollars a hole. Two 3-hole cabinets; eight 4-hole cabinets; six 6-hole cabinets; 26 8-hole cabinets; one 10-hole cabinet; one dual temp. 8-hole cabinet. GENERAL REFRIGERATORS CORP., 678 Broadway, New York, N. Y.

The Watchdog of the Nation's Food

MECHANICAL REFRIGERATION

Humi-Temp Forced Convection Units—Patented CROSS-FIN COILS—Bare Tube Coils—Zinc Fused Steel Plate

Coils—Disseminator Pans—Heat Exchangers—Evaporative Condensers—Instantaneous Water Coolers—

LARKIN COILS, Inc.
519 Memorial Dr., S.E.
ATLANTA, GA.

STANGARD PRIME SURFACE Cold Plates

FOR MAXIMUM EFFICIENT REFRIGERATION

* FOR Locker Plants, Sharp Freezing, Ice Cream Cabinets, Hardening Rooms, Soda Fountains, Storage Rooms, Milk Coolers, Liquid Cooling, Food Counters and other similar uses.

Write us today for complete information and catalog

STANGARD-DICKERSON CORP.
46-76 Oliver Street
Newark, N. J.

Specialists in the Manufacture of all types of COLD PLATES

Stangard facilities are contributing to the production of materials for our National Defense

IT'S TYLER

BIGGEST PROFIT POSSIBILITIES FOR THE LONG SWING!

Now, with Tyler devoting much effort to the national war program, don't forget the benefits which will accrue to Tyler distributors when the full force of Tyler production is again harnessed to peacetime business. TYLER FIXTURE CORPORATION, NILES, MICHIGAN.

GENUINE MAYFLOWER UNITS & PARTS

Complete stocks of genuine Mayflower parts are now available. Full line of air and water-cooled condensing units is also available to meet your priority requirements. Order from your jobber or from the manufacturer. Insist on genuine Mayflower parts.

Jobber inquiries invited.

MAYFLOWER PRODUCTS, INC.
13 S. 3th St.
Richmond, Ind.

CLASSIFIED ADVERTISING

POSITIONS AVAILABLE

SALES MANAGER needs an assistant. A good job awaits the right man. A well known manufacturer of air conditioning equipment has an immediate opening for an assistant to their sales manager. The job is to take over a great part of his detail work. For the present he will be situated at the home office. The man who gets this job should be between 25 and 40 years of age, with an engineering background. Some experience in the sales and engineering of fans and blowers, or with cooling and ventilating problems, is desirable. This opening presents a very real opportunity with one of the most aggressive and forward-looking manufacturers in the industry. The location is in the Middle West. Your reply will be held in strictest confidence. Our personnel knows of this advertisement. In your letter give us your age, draft status, education, experience, salary expected. Air Conditioning & Refrigeration News, Box 1458.

POST-WAR DEVELOPMENT department is being set up by AAA-1 firm, a leader in its field of air conditioning specialties equipment. A very desirable position is open for a tactful, sales application minded, practical engineer, capable of taking full charge of developing new, and expanding on present items for the Air Conditioning and Refrigeration field. Keep first letter brief. All inquiries will be answered. Box 1462, Air Conditioning & Refrigeration News.

WANTED—2 skilled commercial refrigeration servicemen for San Francisco. High wages and bonus. Permanent job to right parties. Write giving age, education, and experience. Box 1463, Air Conditioning & Refrigeration News.

REFRIGERATION PRODUCTS
fedders
BUFFALO, N. Y.

Use CHICAGO SEALS
for seal replacements
A complete line in all sizes
CHICAGO SEAL CO.
20 North Wacker Dr., Chicago

Seamless
PENN BRASS AND COPPER TUBING
PENN BRASS & COPPER CO.
ERIC, PENNA.

PHOTOGRAPHIC PROCESSING EQUIPMENT
Controlled Temperature Film and Print Developing Equipment. Cooling Units for X-Ray Developing Tanks. High Speed Film and Print Drying Equipment. Controlled Temperature Photographic Processing Sinks.
TEMPRITE PRODUCTS CORPORATION
41 Piquette Avenue Detroit, Michigan

HEAT TRANSFER EQUIPMENT
MARLO
COIL COMPANY
SAINT LOUIS, MISSOURI

PAR COMMERCIAL REFRIGERATION UNITS FOR PROTECTION OF VITAL FOOD SUPPLIES
See Your Par Jobber
LYNCH MANUFACTURING CORP.
DEFIANCE, OHIO, U.S.A.

DOLE
VACUUM PLATE COOLING & FREEZING UNITS
CHICAGO

Commercial REFRIGERATION
Modern Display Cases Coolers, Refrigerators
AMANA SOCIETY, AMANA, IOWA

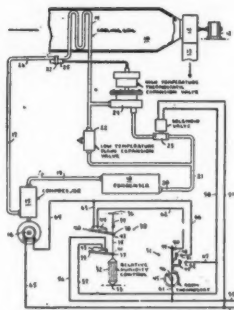
PORTABLE INDUSTRIAL REFRIGERATION UNITS
FROSTRODE
PRODUCTS
19003 John R, Detroit • TO 9-1340

Patents (Cont.)

(Concluded from Page 22, Column 4)

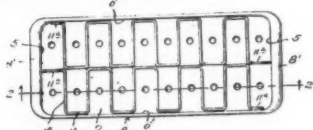
comprising, a refrigerator having a freezing compartment and an air-containing food storage compartment; a system for circulating primary refrigerant including a supply conduit, a return conduit, an expansion valve connected to said supply conduit, a cooling element for said food storage compartment connected between said expansion valve and said return conduit, another expansion valve connected to said supply conduit and another cooling element for said freezing compartment connected between said second-mentioned expansion valve and said return conduit; a vessel of heat transferable material having an exposed surface serving as an inner wall of said food storage compartment and containing a body of secondary refrigerant, said first-mentioned cooling element being located in said vessel and immersed in said body of secondary refrigerant therein to maintain the latter within a relatively small predetermined temperature range whereby air in said compartment to be freely circulated by gravity is cooled and a desired temperature gradient therebetween is maintained; expansion valve controlling means associated with said first mentioned expansion valve including a temperature sensitive element located in said vessel and immersed in said body of secondary refrigerant; and other expansion valve controlling means associated with said second-mentioned expansion valve including a temperature sensitive element associated with said freezing compartment.

2,323,408. AIR CONDITIONING SYSTEM. Wayland B. Miller, Milwaukee, Wis., to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Original application Nov. 18, 1935, Serial No. 50,291. Divided and this application Feb. 7, 1942, Serial No. 429,902. 6 Claims. (Cl. 62-6).



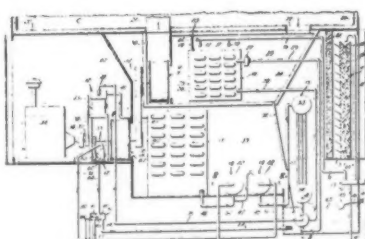
1. The combination with a refrigerating coil over which air to be conditioned is passed before being delivered to a space to be controlled and a compressor for supplying refrigerant to said coil, of an expansion valve for maintaining the coil temperature below the dew-point of the air, a second expansion valve for maintaining the coil at a higher temperature than the valve first mentioned, moisture responsive means for placing said first valve in operation when the humidity increases, and for placing said second valve in operation when the humidity decreases, and temperature responsive means for placing said second expansion valve in operation when the temperature of the air rises above a predetermined maximum, regardless of the humidity.

2,323,466. REFRIGERATING TRAY. George Pizarro, Los Angeles, Calif. Application June 12, 1939, Serial No. 278,743. 2 Claims. (Cl. 62-108.5).



1. The combination of a refrigerator tray and a divider comprising a single zig-zag strip of flexible celluloid affording longitudinal and transverse walls defining substantially triangular expandable ice-forming chambers within said tray, certain of said wall portions being disposed each at an angle with respect to the longitudinal axis of the divider, and the rest of said wall portions being disposed in substantial parallel relation with said longitudinal axis, the last-mentioned wall portions being disposed in contiguous relation to each other at their vertical edges, whereby the wall portions cooperate to form a plurality of completely closed substantially triangular shaped ice-forming chambers.

2,323,511. REFRIGERATING AND AIR CONDITIONING APPARATUS. Carroll W. Baker, Los Angeles, Calif. Application Oct. 24, 1941, Serial No. 416,366. 9 Claims. (Cl. 62-129).

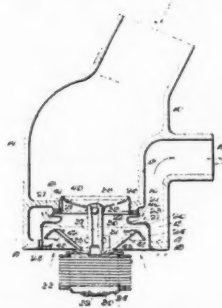


1. A refrigerating apparatus comprising a refrigerant handling system including a relatively stationary evaporator and means for circulating refrigerant to and from the evaporator, a cooling system handling a liquid cooling medium, and including means for effecting an exchange of heat from the refrigerant being handled by the first named means and the cooling medium, and means responsive to the frost condition of the evaporator for discharging the cooling medium onto the evaporator to defrost the same.

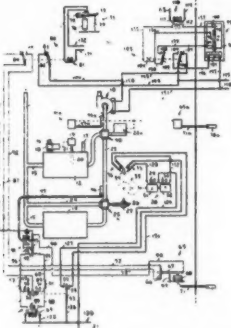
2,323,533. TEMPERATURE REGULATOR. Jean V. Giesler, Knoxville, Tenn., assignor to the Fulton Siphon Co., Knoxville, Tenn., a corporation of Delaware. Application Feb. 24, 1941, Serial No. 380,354. 5 Claims. (Cl. 236-34).

ville, Tenn., a corporation of Delaware. Application Feb. 24, 1941, Serial No. 380,354. 5 Claims. (Cl. 236-34).

1. In a temperature regulator for controlling the flow of cooling medium through main and by-pass passages of the cooling system of an internal combustion engine, a tubular housing element having end portions of different diameter, a thermostat mounted on said tubular housing element, an intermediate portion of said housing element being inclined to the axis thereof and apertured to provide a valve seat, a pair of valve members connected to said thermostat, one of said valve members cooperating with a valve seat provided on the end portion of said tubular housing element and the other of said valve members having a seating portion arranged to close the apertures in said inclined portion when said first named valve member is open, and said second named valve member cooperating only at the periphery of said seating portion with the portion of said housing element of larger diameter to constitute a guide for both of said valve members during the expansion and contraction of said thermostat.



2,323,573. **AIR CONDITIONING SYSTEM.** William L. McGrath, Philadelphia, Pa., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application Nov. 15, 1941, Serial No. 419,302. 16 Claims. (Cl. 257-3).

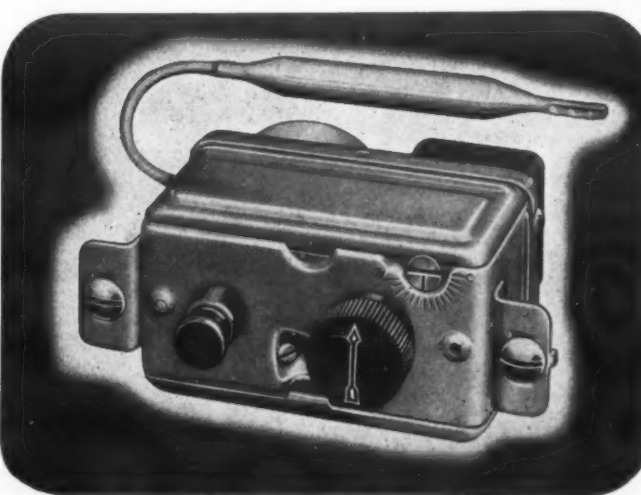


9. In apparatus of the character described, in combination, means for heating a fluid medium, means for cooling said medium, means for circulating said medium to a space, means comprising two three-way valves whereby the medium can be made to flow through either the cooling means or the heating means and in by-pass relation with the cooling and heating means, the valves controlling the proportion of medium by-passed, means responsive to temperature changing load requirements controlling said valves dependently on whether or not heating or cooling is necessary, means comprising a humidity responsive device for causing all the medium to go through the cooling means, and means for causing the flow of medium to be substantially stopped and started in response to temperature regulating requirements when all the medium goes through the cooling means.

'Case History' Data Given On Lindsay Structure

CHICAGO—Lindsay and Lindsay, makers of Lindsay Structure, a light-steel, pre-fabricated construction, have released a new eight-page booklet entitled, "An Introduction to Lindsay Structure." The illustrated booklet gives the complete step-by-step process for assembling Lindsay Structure, with actual case histories of different uses of the Structure in the industrial, automotive, and marine fields.

The structure possesses a strength-weight ratio, and can be used for various purposes, such as machine housings, refrigerator buildings, industrial buildings, truck bodies, ovens, processing rooms, unit coolers, and other structures.



SOME MODELS ARE STILL AVAILABLE

'Care and Use' Booklet In Revised Edition

MANSFIELD, Ohio—Revision of "The Care and Use of Electric Appliances in the Home," a booklet originally issued by Westinghouse Electric & Mfg. Co. to help homemakers keep their appliances in good working order, has been completed and the new edition is now ready for distribution, according to an announcement from the company.

Devoted to "fix it" suggestions on refrigerators, lamps, ranges and other Westinghouse electrical appliances, are 18 pages, the compiled information resulting from collaboration of Westinghouse engineers and Mrs. Julia Kiene, director of the Westinghouse Home Economist Institute.

The booklet brings out within its 52 pages the importance of calling for professional service when trouble warrants it, and also the retailer's responsibility in helping owners make minor repairs themselves.

REFRIGERATION SUPPLIES AND EQUIPMENT

If it's to be had, you can get it here.

THE HARRY ALTER CO.
1728 S. Michigan Ave. Two Big Warehouses to Serve You
Chicago, Ill. 134 Lafayette St. New York, N. Y.

HENRY
CARTRIDGE DEHYDRATOR
With Side Outlet and Dispersion Tube

This exceptional design permits easy removal and replacement of cartridge without loosening end connections. Dispersion tube for increasing drying efficiency and minimizing pressure drop is incorporated as integral part of refill cartridge.

Ask your jobber for it.

FILLED WITH SILICA GEL OR ACTIVATED ALUMINA

HENRY VALVE CO. 1001-15 N. SPAULDING AVE. CHICAGO, ILLINOIS

Save Money AND MATERIAL

WITH HASCO REBUILT PARTS
Guaranteed Equal to New

Our catalog lists 225 parts ready to ship, priced to save money for you and your customer. Every item completely cleaned, adjusted, gauged and fitted to give service equal to original equipment. For instance, rebuilt Frigidaire Float Valve, like new for \$2.50 and your old valve. Unconditionally guaranteed for 90 days! Get our free illustrated catalog. Write today!

HASCO, INC.
GREENSBORO, N. C.

CONTINUOUS GUARD DUTY

Day in, day out, Ranco Controls perform dependable guard duty over essential foods. We're proud of the hard work and study that has gone into these precise, sensitive instruments. It's reassuring to know that Ranco Controls are giving a fine account of themselves at home and at the front.

Ranco Inc.
COLUMBUS, OHIO.

Servel Reports To Field on Plans For Gas Air Conditioner

(Concluded from Page 1, Column 2)

no deliveries can be made until after the war, as the company is now entirely converted to war production, distribution plans are now being formulated so that adequate sales personnel may be trained to sell the new product.

Servel is now recommending that its outlets set up air conditioning departments within their organizations, survey their local markets, and train skeleton sales crews for future expansion.

Geo. S. Jones, Jr., vice president and general sales manager, is in charge of Servel's program to enlist the cooperation of gas companies in forming marketing plans. Meetings for this purpose have already been held in key cities throughout the country, which have been attended by more than 500 gas company officials.

In announcing its new plans, Servel is receiving much help from the Committee for Economic Development which has furnished speakers for most of the meetings. Colonel Willard Chevalier, who addressed the meeting in New York, cited the company's program as one of the best examples of constructive post-war planning that had come to the attention of the Committee.

Other prominent CED speakers who have appeared at these meetings are: Ralph Budd, president of the Burlington Railroad; H. Carl Wolf, president of the Atlanta (Ga.) Gas Light Co.; Byron T. Shutz, of Herbert V. Jones & Co., Kansas City, Mo., and Ernest Ingold, president of the San Francisco C. of C.

Among prominent utility men who reported their successful experiences with the new product at the regional meetings were: Joe H. Gill, president of the United Gas Corp., Houston, Tex.; Harold E. Meade, vice president of the New Orleans Public Service Co.; Ed P. Noppel, Ebasco Services, New York City; Dean Strickland, general sales manager, United Gas Corp., and F. M. Banks, vice president of Southern California Gas Co.

Consensus of the opinion expressed by these utility executives is well summarized in the comment of Mr. Gill, who said:

"Looking at our own situation and considering all the possibilities of the residential and commercial market for our system, it appears to us to be entirely in the range of accomplishment to look forward to several thousand installations within a reasonably short period after the equipment is again available."

Servel has been working on its gas air conditioner for nine years. Marketing began on a limited scale in 1940 and 1941, but the company's conversion to war production postponed extensive distribution. During the war period, however, Servel has been busily checking and field testing its 300 installations so as to profit from this experience in all sorts of climatic conditions.

Eastman Suggests 'Mail' Convention

WASHINGTON, D. C.—In another plea for cancellation of conventions, Joseph B. Eastman, transportation director, suggested "convention-by-mail" as a substitute for personal attendance via travel on overtaxed railroads.

To Eastman, the railroad problem is so serious that unless there is some easement soon, passenger travel will face rationing restrictions—a system "foreign to our whole tradition," he described it. By banning not only business conventions but conventions devoted to the pursuits of war as well, many badly needed train accommodations can be made available for troop movements.

As the condition is now, he said, military needs are increasing every day, thereby decreasing facilities for civilian accommodations. To help improve the situation he said that it is the duty of every organization to conscientiously decide whether cancellation "will not accomplish more for the war effort than anything that can be gained by holding the conventions."

Copper & Brass Jobbing Firms Organize

CHICAGO—At a meeting held here recently of representatives of brass mill products distributors industry called by J. H. King, vice president of the Seaboard Brass & Copper Co. of Baltimore, a new organization to be known as the Brass Mill Products Distributors Assn. was formed.

With King acting as chairman, the 48 representatives in attendance decided upon the following committees:

Finance: W. H. Scott, Syracuse Supply Co., Syracuse, N. Y.; E. F. McCarthy, Buffalo, N. Y.; Curtis C. Indianapolis, and E. E. Wentworth, Vulcan Copper & Supply Co., Cincinnati, Ohio.

Carmichael, Copper & Brass Sales, Inc., Detroit; George D. Potter, Steel Sales Corp., Chicago.

Organization: Frank Schofield, Sueske Brass & Copper Co., Chicago; M. C. Young, William M. Orr Co., Pittsburgh; J. W. Tull, J. M. Tull Metal & Supply Co., Atlanta, Ga., and H. E. Toerell, Syracuse Supply Co., Syracuse, N. Y.

Aims and Objectives: Norman Roso, New York Brass & Copper Co., New York; Leonard Sutter, H. M. Hillman, Brooklyn, N. Y.; Newt T. Hess, Voris Brothers, Inc., Columbus, Ohio; R. W. McGarity, J. M. Tull Metal & Supply Co., Atlanta, Ga.

Membership: W. A. Doocey, T. E. Conklin Brass & Copper Co., New York; L. B. McGrew, Williams & Co., Inc., Pittsburgh; F. S. Langsenkamp, Jr., F. H. Langsenkamp Co.,

Westinghouse Promotes Whiting and Dostal

EAST PITTSBURGH — Fred T. Whiting, manager of Westinghouse Electric & Mfg. Co.'s northwestern district, and Charles A. Dostal, manager of the Pacific Coast district, have been elected vice presidents of the company, A. W. Robertson, chairman, announces.

Whiting has been in charge of the northwestern district sales activities with headquarters in Chicago since 1930 and has been with the company since 1913, the year he graduated as an engineer from Iowa State College.

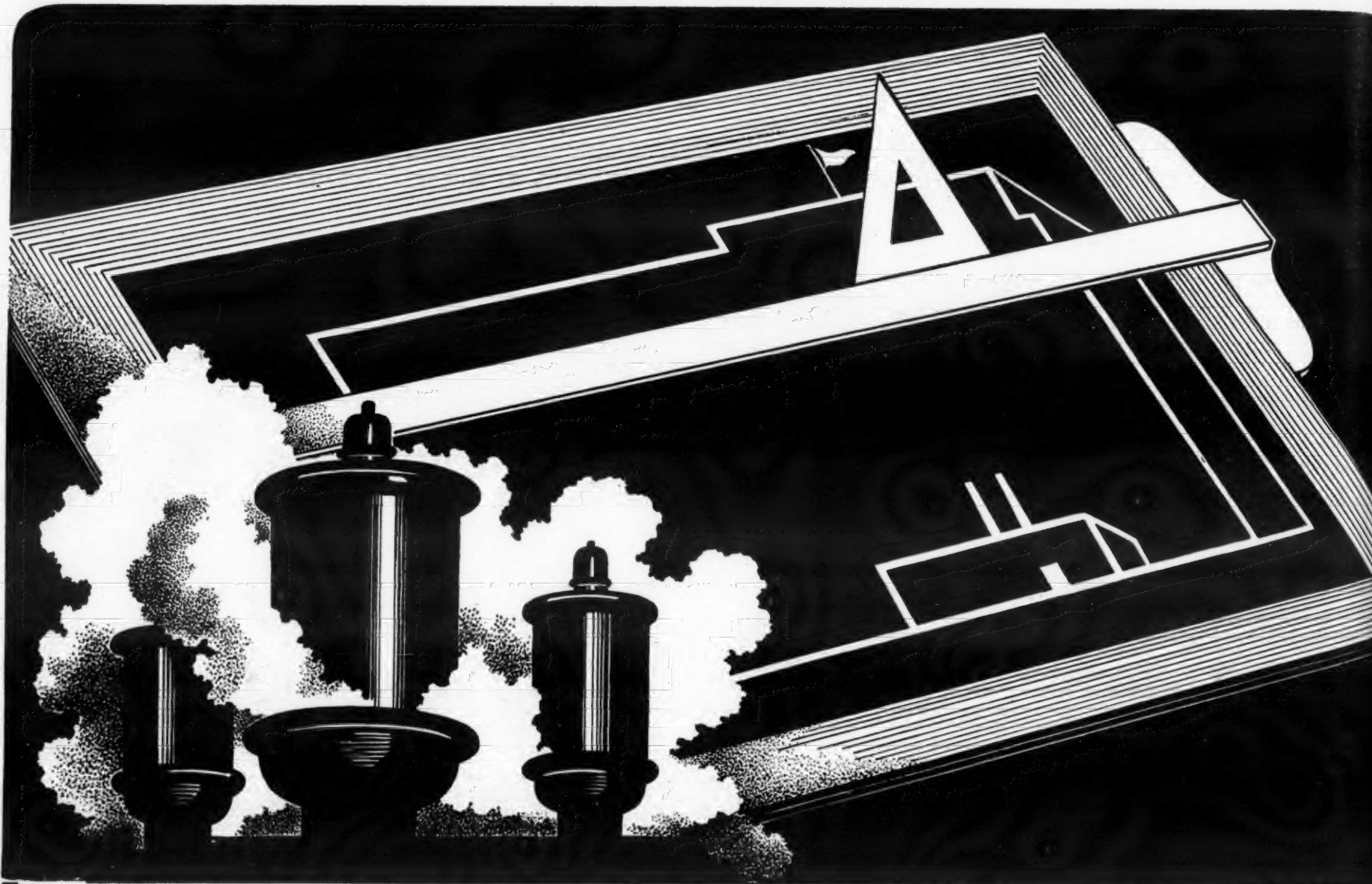
Dostal, who has been with Westinghouse for 37 years, became a district manager in 1939, directing

sales in 11 of the western states, Alaska and the Hawaiian Islands. About 1931 when Westinghouse organized its electric refrigeration department, Dostal was made regional manager of the Pittsburgh, Chicago, and St. Louis areas.

Prices Are Reduced On Frostrade Units

DETROIT—As a result of economies effected by increased production, Frostrade products here has just announced substantial price reductions on all models of their portable welding refrigerator units.

Reductions range from approximately 10% to over 23% of the previous prices despite increased labor and materials cost.



BLUE PRINT FOR PROSPERITY



Prosperity is an essentially simple phenomenon. It is a condition of affluence common to organizations or individuals who (a) develop a facility for successful long range planning through an intensive study of business trends, or who (b) recognize opportunity when it knocks them over the head with a club.

In other words, genius is not always necessary to success. As a matter of fact it is sometimes not even desirable. It merely helps not to be half-witted.

Right now is one of those times!

The refrigeration industry has been revolutionized... and the process is still going on. But... it has been done with all the hush-hush of military secrecy. To say that "you don't know the half of it" would be an understatement.

There will be MANY TIMES the volume of refrigeration business after the war that there was before... or that there is now. Right now there are fewer manufacturers, fewer jobbers and fewer dealers to handle it. And this is not the sort of business that one sets up in over night. It does not require an Einstein to note that these factors add up to PROSPERITY. Opportunity is knocking... with a club.

For this kind of prosperity a blue print is hardly necessary. All you really have to do is stick around. But here it is anyway.

What is it about "a word to the wise"...? Well, I'm giving you seven paragraphs and pictures.

PENGUIN PETE

P. S. And even more obvious is what to do about U. S. War Bonds... BUY 'EM!

BUSH MANUFACTURING CO.
Commercial Cooling Units

HARTFORD CONN. • 415 LEXINGTON AVENUE NEW YORK • 549 W. WASHINGTON BLVD. CHICAGO